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SECOND SERIES: PULMONATA.

# MANUAL

OF

# CONCHOLOGY;

## STRUCTURAL AND SYSTEMATIC.

WITH ILLUSTRATIONS OF THE SPECIES.

BY GEORGE W. TRYON, JR.

CONSERVATOR OF THE CONCHOLOGICAL SECTION OF THE ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA.

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ZONITIDÆ.

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# MANUAL OF CONCHOLOGY.

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## Family *ZONITIDÆ*.

Animal protected by a spiral, heliciform shell, within which it is completely retractile; tail provided with a caudal mucus-pore; jaw with a median inferior projection, not ribbed; the central tooth in the lingual ribbon is tricuspid, with the middle cusp long and narrow, laterals bicuspid, marginals acuminate, unicuspidate or bicuspidate.

Shell usually heliciform and perforate or umbilicate, often thin, and more or less transparent, the lip of the aperture simple, neither reflected nor with thickened margin.

The family thus defined includes several hundred species, usually considered Helices, but which differ from that group in the generally thinner, more translucent shells, the aperture with simple margin; the genuine Helices being generally thicker, and with the margin of the aperture either reflected or thickened within.

The jaw also is not ribbed, unlike most Helices, and the dentition differs. Externally, the animal is at once distinguished from Helix by the presence of a mucus-pore. There are some pulmoniferous mollusks having Zonitoid shells, whilst their soft parts place them in Helicidæ, and vice versa. The animals of most of the species, however, are entirely unknown to science, and we are thus reduced to analogies of the shell in determining their systematic position. On the side of the Vitrinidæ the relations of both animal and shell are quite as intimate, the group Otesia, for instance, which at the last moment I decided to include in the latter family, being made a member of the Zonitidæ by Pfeiffer, Fischer and other good authorities. The Vitrinid mantle-lobes exist in a modified form in some of the groups of the present family.

The want of sharply defined characters makes the division of the family into generic and subordinate groups very unsatisfactory, and authorities differ widely as to the systematic position of many of the species. As most of these are known to us by the shell only, whilst some of the groups are differentiated entirely upon anatomical grounds, it is difficult to arrive at satisfactory conclusions regarding them. In Pfeiffer's "Nomenclator Heliceorum," many species are undoubtedly erroneously grouped, but it is the only attempt recently made to arrange all the species, and I believe that the best interests of science will be conserved by adopting Pfeiffer as the basis of my classification, correcting such errors as have been indicated, or are apparent to me, and adopting such new groups as have been proposed by more recent systematists, but usually without attempting their enlargement by incorporating additional species with them. When I shall depart from this rule it will be generally on account of the geographical distribution of a newly proposed group indicating pretty conclusively the common origin of its assigned species, and those not heretofore referred to it, but partaking of its features.

The monographer of the Zonitidæ has ample material for his work in Pfeiffer's several volumes, "Monographia Heliceorum Viventium" and his "Nomenclator Heliceorum," in the beautifully illustrated monograph of Reeve, "Conchologia Iconica," the Helicidæ of Küster's "Conchological Cabinet," Pfeiffer's "Novitates Conchologicæ," Rossmässler's "Iconographie," and numerous other works and papers.

*Synopsis of Genera.*

Genus NANINA, Gray, 1834.

Shell dextral or sinistral, heliciform, usually rather thin and polished, the periphery rounded or angulated, columellar lip short, reflected, often covering the umbilicus, outer lip simple, sharp.

Animal capable of complete retraction within its shell, the mantle furnished with an anterior lobe often bilobate, and a collar which is sometimes simple, and sometimes provided with one or two lobules reflected upon the shell; these mantle-lobes possess some power of lateral movement and of expansion and retraction. Foot long and narrow, subtruncate posteriorly and

glandular, the pore slit-like, often surmounted by a horn-shaped protuberance.

Distribution. About six hundred species have been described, many of which are simply varietal forms; they inhabit the tropical regions of the old world, Africa, Asia and its islands, Philippines, Polynesia, etc.

The Naninas are closely related to the genus Zonites, which is largely American and European in distribution, although a few of its species occur in countries inhabited by the former. They may be distinguished from Zonites by a generally larger, less polished, thicker shell, and by the animal having cervical mantle-lobes, and frequently polishing appendages, by their genital orifice close to the tentacle, and by the marginal teeth of the radula being bicuspidate.

### Subgenus Ariophanta, Desmoulins, 1833.

Shell sinistral, umbilicated, often angulated on the periphery.

Animal. Mantle without polishing lobes; mucus-pore large, without coniform protuberance. *East Indies.*

### Subgenus Cœlatura, Pfeiffer, 1877.

Shell dextral, often spirally sculptured, umbilical region excavated, imperforate, columellar lip straight, oblique.

Mucous pore without horn, mantle-lobes but slightly developed. *Is. of Mauritius and Bourbon.*

### Subgenus Rotula, Albers, 1850.

Shell dextral, subperforate; spire depressed conical, last whorl carinated at the periphery; columella very short, vertical.

Mucous pore with but a slight protuberance; mantle without polishing lobes, left cervical lobe usually bipartite.

*Mauritius, India, East Indies.*

Section Pachystyla, Mörch, 1852 (restricted).

Columella thickened and flattened.

Section Stylodonta, Jan, 1832.

Imperforate, rather solid, periphery subangulated; basal margin of aperture somewhat thickened, columella short, oblique, bearing a fold-like tooth.

*Erepta*, Albers, 1850, is a synonym.

Section CALDWELLIA, H. Adams, 1873.

Shell small, subtrochiform, fragile, translucent, with angular periphery and simple aperture.

Subgenus RHYSOTA, Albers, 1850.

Shell dextral, often large and rather thick for the genus, not transparent, base excavated around the umbilicus.

Mantle without shell lobes, left cervical lobe bipartite; mucous pore surmounted by a corniform protuberance.

*East Indies, Philippines, Polynesia.*

Section RHYSOTA (restricted).

Upper and lower surface of the shell similarly sculptured, rugose, finely vermiculate or granular; periphery more or less angulated.

Section HEMIPLECTA, Albers, 1850.

Shell granular or striated above, smooth or polished below.

Section EUPLECTA, Semper, 1870.

Shell striated or ribbed above. Cervical lobes of the mantle developed, the left one divided; shell lobes rudimentary; mucous pore with a short horn. *Philippines.*

*Inozonites*, Pfeiffer, 1883, may be placed here.

Section ROTULARIA, Mörch, 1872.

Shell resembling Rotula. Mucous pore with a horn-shaped protuberance. *Nicobar Islands.*

Section TROCHONANINA, Mousson, 1869.

Shell thin, striated above, smooth below, spire conical, periphery angulated. *Polynesia.*

Section MARTENSIA, Semper, 1870.

Shell conical, keeled, perforate, sculptured above, smooth below. Right shell lobe wanting, left cervical lobe bipartite; mucous pore with a horn. *East Africa.*

I think it very doubtful whether the several African groups proposed by Semper, Martens, Pfeffer, etc., ought really to be separated from Trochonanina. *Ledoulxia*, Bourg., 1885, might as well be united with *Martensia* for the present; it is founded upon very unimportant characters of the shell alone, and takes for its type the variety *albopicta* of *N. Mozambicensis*, the latter being the type of *Martensia*.

Section ZINGIS, Martens, 1878.

Shell heliciform with simple peristome; last whorl with rounded periphery.

Animal without shell lobes, but with two cervical lobes, with horn over the mucous pore; jaw smooth. *Zanzibar.*

? Section HAMYA, Bourg., 1885.

Shell Hyalina-like, strangulated near the aperture, as in Alycæus.

N. REVOILI, Bourg. Quaternary. *East Africa.*

Section TROCHOZONITES, Pfeffer, 1883. *West Africa.*

Section SITALA, H. Adams, 1856.

Shell conoid, thin, whorls numerous, usually spirally ribbed or striated; base convex, narrowly or indistinctly umbilicated.

Animal long and narrow; tail gland surmounted by a distinct horn; two shell lobes and two cervical lobes on the mantle, all of them small and with no separately produced appendages; jaw thin, smooth, concentrically striated in the middle.

*India, Burmah, East Indies.*

*Conulema*, Stoliczka, 1871, is a synonym.

Section KALIELLA, Blanford, 1863.

Shell conical, with angulated periphery.

Animal with well-defined caudal appendage. *India.*

Subgenus ORPIELLA, Gray, 1855.

Shell thin, rounded, depressed, whorls convex, the last somewhat flattened basally.

Animal without shell lobes; a protuberance over the mucous pore, and several fleshy appendages in a double row along the back of the tail.

*Fiji Islands.*

Subgenus XESTA, Albers, 1850.

Shell perforate, or narrowly umbilicate, orbicularly depressed, smooth, usually polished; aperture large, rounded ovate, margin acute, columellar margin dilated and reflexed.

Animal with one or two shell lobes; mucous pore simple, or surmounted by a slightly developed corniform appendage.

Section XESTA (restricted). *East Indies, India,* etc.

Section XESTINA, Pfeffer. *India.*

Section MACROCHLAMYS, Benson, 1832.

Shell depressed globose, pellucid or corneous, smooth and shining.

Mantle with two long tongue-shaped shell lobes; left cervical lobe divided into two diverging portions; mucous pore with conical appendage. *India*, etc.

*Tanychlamys*, Benson, 1834, and *Orobia*, Albers, 1860, are synonyms.

Section MACROCERAS, Semper, 1870.

Conical appendage of the mucous pore very long. *Philippines.*

Section BENSONIA, Pfeiffer, 1855.

Shell thin, perforate, obliquely sculptured above, crossed by impressed revolving lines. *India.*

Section SOPHINA, Benson, 1859.

Shell with a callous columella, angulated at the basal margin, and with a more or less acute umbilical carina.

Foot long, obliquely truncate, with a large tail gland and distinct horn-shaped appendage; mantle lobes as large as in *Helicarion.* *Burmah.*

Section EURYPUS, Semper, 1870.

Shell with obscurely keeled periphery, umbilicus very narrow.

Foot with the back broad, not carinated. *Fiji Islands.*

*Aulacopus*, Pfeffer, is a synonym.

Section DURGELLA (Blanford), Stoliczka, 1871.

Shell thin or membranaceous, globose or globosely conoid, polished, narrowly perforate, columellar margin not much thickened.

Dorsal lobes moderate, shell lobes very ample, triangular when extended; mucous pore well developed, with large overhanging lobe. *India, Burmah.*

Section MICROCYSTIS, Beck, 1837.

Shell small, subperforated, usually slightly keeled, glabrous; aperture large, subvertical.

Mantle margin with shell lobe on right side only; left cervical lobe bipartite. *Polynesia.*

*Helicopsis*, Beck, 1837, and ? *Platycloster*, Hasselt, are synonyms.

Section MICROCYSTINA, Mörch, 1872.

Shell small, polished, with a deep notch at the columellar margin.

Animal like *Microcystis*. *India.*

Section SAGDINELLA, Mörch, 1872. *Nicobar Islands.*

Section THAPSIA, Albers, 1860.

Shell orbicularly depressed, thin, pellucid, undulately decussated, narrowly perforated; peristome acute, columellar margin narrowly reflected. *West Africa.*

Section LAMPROCYSTIS, Pfeffer. *India, Polynesia.*

Section OXYTES, Pfeiffer, 1855.

Shell usually large, obliquely striate or plicate, depressed, carinated, umbilicated; peristome expanded, thin, columellar margin thickened.

Animal with short somewhat thickened tentacles; mucous gland without marked appendage; right cervical lobe triangular, well developed, left lobe bipartite, anterior portion large, posterior very small and giving off short processes; left shell lobe a narrow ribbon, reflected over the peristome, no right shell lobe. *India.*

Subgenus SESSARA, Albers, 1860.

Shell imperforate, depressed orbicular, costulate-striate above, base smooth, excavated, periphery angulated; aperture depressed, wide, basal lip denticulated, columellar thickened.

Mantle lobes small, but as in Xesta. *Burmah.*

Subgenus GUILLAINIA, Bourguignat.

Shell thick, calcareous, strongly striate or costulate, globular, bluish white, peristome simple, obtuse, interior dark chocolate-colored.

Animal with a large profound mucous pore with horn-like appendage. Dentition and jaw as in *Hyalina*.

The shell reminds one of the genus *Leucochroa*. *East Africa.*

## Genus ZONITES, Montfort, 1810.

Shell subdepressed, umbilicated, very thin, more or less transparent; aperture semilunar, usually without teeth; lip thin, sharp.

Animal elongate, completely retractile within the shell, having a caudal mucus-pore, more or less developed, but consisting usually of a simple linear slit; mantle lobes small, not reflected on the shell; genital orifice distant from the right tentacle; jaw with a well-marked median rostrum; lateral teeth bicuspidate, marginals sharp, narrowly unicuspidate.

*Europe, Western Asia, America.*

Subgenus ZONITES (typical).

Shell depressed orbicular, widely umbilicated, striated above, smooth below, rather solid, whorls numerous (6 or 7), lip sharp, with a slight parietal callus.

Labial palpi small; caudal gland reduced to a simple slit.

*Southern Europe, Asia Minor.*

The synonyms are *Ægopis*, Fitzinger, 1833, *Tragomma*, Held, 1837, *Helicodes*, Dumas, 1847, *Verticillus*, Moquin-Tandon, 1855, *Archæozonites*, Sandberger (fossil).

Subgenus HYALINIA, Ferussac, em. 1819.

Shell thin, vitreous, fragile, shining, unicolored, corneous; last whorl not descending at the aperture; peristome thin, sharp.

Mucus-pore shallow, hardly distinct, extremity of the tail slightly sinused, skin bluish.

*Northern Hemisphere*, species numerous.

Section VITREA, Fitzinger, 1853.

Shell small, fragile, shining, hyaline, smooth, convexly depressed, perforate or imperforate, aperture lunate.

*Crystallus*, Lowe, 1854, is a synonym.

Section POLITA, Held, 1837.

Shell depressed or subdiscoidal, umbilicate, smooth, shining, pellucid, corneous, the base more or less milky opaque, aperture obliquely lunate.

This is the typical group. Its synonyms are *Oxychilus*, Fitz., 1833; *Lucilla*, Lowe, 1854; *Euhyalina*, Albers, 1857; *Aplostoma*, Moq.-Tand., 1855.

Section ZONITOIDES, Lehmann, 1864.

The animal differs from the typical Hyalinia in possessing a dart, like the Helicidæ; the shell is a *Polita*. *European.*

Section NAUTILINUS, Mousson, 1872.
Shell nautiloid, involute.

Section CONULUS, Fitzinger, 1833.
Shell small, pellucid, corneous, globosely turbinated or conic, thin, usually perforate, aperture lunar, oblique.
*Trochiscus*, Held, 1837, and *Petasia*, Beck, 1837, are synonyms.

Section CONULOPOLITA, Böttger, 1879.
Not umbilicated, base planate, excavated in the middle; shell large, subturbinate; whorls 6½–7, very slowly increasing; aperture depressed, lunar. *Caucasus.*

Section DIERAMA, Pfeiffer, 1877.
Not described; instituted for a single species, H. DIERAMA, Pfr. *Hab. unknown.*

Subgenus PHACUSSA, Hutton, 1884.

Shell depressed; periphery rounded; whorls 5–6, gradually increasing. Mantle included. Jaw with flat ribs. *New Zealand.*

Subgenus STENOPUS, Guilding, 1828.

Shell depressed or conical, perforated, thin, diaphanous, lip sharp.
Animal with a linear locomotive disk, separated from the lateral parts by a groove on either side as in Vaginula; caudal gland with a retractile appendage.
*Mexico*, *Venezuela*, *West Indies.*
Is *Guppya*, Mörch, 1867, and *Habroconus*, Crosse and Fischer, 1872.

Subgenus OMPHALINA, Rafinesque, 1819.

Shell widely umbilicated, depressed orbicular, striated above, smooth and shining below, aperture large. Labial palpi large, caudal pore well-marked.
*Europe*, *United States*, *Mexico*, *Guatemala.*

Section OMPHALINA (restricted). *United States.*

Section MORELETIA, Gray, 1855. *Mexico*, *Guatemala.*

Section ZONYALINA, Martens, 1865. *Mexico.*
Said to be distinguished from Moreletia by the want of the outer cervical lobe of the mantle.

Section PATULOPSIS, Strebel, 1880.

Shell *Patula*-like, periphery angulated, upper surface finely ribbed-striate, umbilicus open, perspective. Left cervical lobe of the mantle divergently bipartite. *Mexico.*

Section ÆGOPINA, Kobelt, 1879. *Europe.*

Includes the larger European species and is scarcely distinct from *Omphalina*. *Retinella*, Shuttl., is a synonym.

Section MESOMPHIX, Rafinesque, 1819.

Shell umbilicate or perforate, conical or conical-depressed, thin, plicately striated, brownish horn-color, usually lighter colored below; whorls close; aperture lunar ovate, lip sharp, subreflexed on the columella. *United States.*

Barely distinguished from *Omphalina* by its closer whorls, plicate striæ, and more conical form.

Subgenus GASTRODONTA, Albers, 1850.

Shell subperforate or narrowly umbilicated, orbicularly depressed, light horn-color, sometimes glassy, with more or less numerous wrinkle-like striæ; whorls, 5–7; aperture lunate, its interior with lamellar denticles, not reaching the acute margin. *United States.*

Section GASTRODONTA (typical).

Denticles within the outer and basal walls of the aperture, occurring at rest-periods of the growth and persistent.

Section VENTRIDENS, Binney and Bland, 1869.

Aperture with revolving series of pliciform teeth within the base only.

Section HELICODISCUS, Morse, 1864.

Minute, planorboid, with spiral striæ; aperture lamellarly toothed within the outer lip.

? Section ODONTOSAGDA, Martens, 1860.

Shell whitish, depressed, thin, umbilicated; whorls 6, the last with convex base; aperture lamellarly toothed. *Haiti.*

? Section PROSERPINULA, Albers, 1860.

Discoidal, hyaline, transparent, covered perforate; whorls $4\frac{1}{2}$, planulate, the last with shining callus around the umbilical region; aperture with a spiral lamella attaining the margin. *Jamaica.*

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Subgenus STRIATURA, Morse, 1864.

Shell small, striate, thin, translucent, without teeth in the aperture.

Jaw almost smooth, with a median furrow and notch; central tooth of the radula very large. *United States.*

Distinguished chiefly by the jaw and dentition.

Section PSEUDOHYALINA, Morse, 1864.

Shell minute, subdiscoidal, slightly convex above, unicolored, closely striate-ribbed, umbilicus moderate. *N. America.*

*Chanomphalus*, Strebel, 1880, is a synonym.

Section PYCNOGYRA, Strebel, 1880.

Shell many-whorled, depressed conical above, whorls narrow, ribbed-striate, translucent; umbilicus rather large, bordered by an obtuse angle. *Mexico.*

Subgenus JANULUS, Lowe, 1852.

Shell umbilicated, depressed orbicular, costulately striate above, rather smooth below; whorl 7–8½, closely revolving, the last convex at the base; aperture lunar, peristome simple, thin, with a callous ring within. *Madeira.*

Jaw and radula typical.

Genus SELENITES, Fischer, 1879.

Shell depressed orbicular, widely perspectively umbilicated, strongly striate above, last whorl obliquely depressed above, depression becoming more marked at the aperture; extremities of the peristome approaching.

Animal having the jaw of Zonitidæ, but the dentition of the Testacellidæ. *United States.*

On account of the jaw and dentition, Dr. Fischer has made this group the type of a family Selenitidæ, interposed between Testacellidæ (having similar teeth, but no jaw), and Zonitidæ (having similar jaw, but different teeth).

Section HAPLOTREMA, Ancey, 1881.

Shell much smaller, peristome sharp.

Section MORCHIA, Albers, 1860.

Shell darker colored, striatulate. *West Indies.*

## Genus CHAROPA, Albers, 1860.

Shell umbilicated, depressed, ribbed, usually hairy; periphery rounded.

Animal with caudal mucous gland. Jaw flat-ribbed. Marginal teeth of the radula broad, usually with many points.

*New Zealand, Polynesia.*

Hutton (Trans. N. Zeal. Inst., xvi, 200) has made this the type of a family Charopidæ, the animal having heliciform dentition, with a mucus-gland on the tail, as in Zonites.

Section CHAROPA (typical).

Section GERONTIA, Hutton, 1884.

Shell depressed, widely umbilicated, striated; periphery rounded; whorls about five, slowly increasing; aperture oblique.

Animal heliciform; mantle rather posterior, included; tail acute, with a mucus-pore but no papilla; jaw smooth or striated.

*New Zealand.*

Section PYRRHA, Hutton, 1884.

Shell subperforate, thin, translucent, of $4\frac{1}{2}$–$5\frac{1}{2}$ regularly increasing whorls. Mantle subcentral, reflected over the peristome of the shell with an even margin; tail truncate, with a large papilla and mucous gland. Jaw with flat ribs. Marginal teeth broad, with several points. *New Zealand.*

Section PSYRA, Hutton, 1884.

Imperforate or narrowly umbilicated, ribbed, not hairy, periphery rounded. Jaw and teeth as in *Charopa*.

*New Zealand.*

Section THERASIA, Hutton, 1884.

Subperforate or narrowly perforate, conoidal, depressed, periphery subcarinated; whorls smooth, striated or with membranous plaits. Jaw with flat ribs. Marginal teeth broad, usually with several points. *New Zealand.*

Section THALASSIA, Albers, 1860.

Shell narrowly or moderately perforate, conic orbicular, thin, pellucid; whorls five or six, smooth or with membranous plaits, slowly increasing, the last round or with angulate or carinate periphery; umbilical region impressed; peristome simple, acute, columellar margin slightly reflexed. Jaw flat-ribbed. Marginal teeth longer than broad, with one point very much longer than the others. *New Zealand, Australia, Polynesia.*

## Genus NANINA, Gray, 1834.

### Subgenus ARIOPHANTA, Desmoulins, 1833.

N. KADAPAENSIS, Nevill. Pl. 1, figs. 1, 2.

Shell perforate, solid, obliquely striate, chestnut colored, white zoned at the suture, periphery and base; whorls $5\frac{1}{2}$, the last descending anteriorly, base inflated; aperture concolored, lip obtuse, white, columellar margin a little reflected, almost covering the perforation. Diam. 37, alt. 27 mill.

*Kadapa, India.*

Long known under the name of *Helix Nicobarica*, Chemn., but is not found at the Nicobar Is.

N. LAIDLAYANA, Benson. Pl. 1, figs. 3, 4, 5.

Shell narrowly imperforate, thin, obliquely striate, decussated by crowded spiral striæ, translucent, shining, whitish, with a narrow chestnut zone at the suture, a wider band above the periphery, and a narrow one below it, throat and lip chestnut colored; whorls 5, suture lightly impressed; the last whorl angulated at the periphery, slightly descending in front, convex below, columellar margin greatly narrowing the perforation. Diam. 27, alt. 15 mill.

*Bengal.*

*N. parietalis*, Martens, is a synonym. Sometimes only the sutural and a narrow peripheral band are present.

N. THYREUS, Benson. Pl. 1, fig. 6.

Shell umbilicated, depressed, solid, bluish horn color, closely, sharply striate above, with obsolete slight spiral striæ; whorls 5, with sutures scarcely impressed; body whorl carinated, below the carina obsoletely chestnut fasciated, not descending at the aperture; base shining, radiately striate; interior purplish brown, white zoned in the middle. Diam. 35, alt. 16 mill.

*Southern India.*

*N. ryssolemma*, Gray, is a synonym.

N. CYSIS, Benson. Pl. 1, figs. 7, 8.

Shell umbilicated, rather solid, closely plicate striate, light olivaceous horn-colored, under a deciduous epidermis; whorls 5, with impressed suture, the last whorl wider, tumid, slightly descending in front; periphery very obsoletely angulated; aper-

ture subpearly, lip a little thickened, the extremities joined by a thin parietal callus. Diam. 45, alt. 24 mill.

*Nilgherry Mts., India.*

*N. ampullarioides*, Reeve (fig. 8) is a synonym.

N. AURIS, Pfr. Pl. 1, figs. 9, 10.

Shell umbilicated, thin, closely obliquely striulate, yellowish brown; suture linear, very minutely crenulated; whorls 4½, the last not descending, subangulated at the periphery, the base tumid, more shining. Diam. 47, alt. 22 mill.

*Koondah Mts., India.*

N. INTUMESCENS, Benson. Pl. 1, fig.

Umbilicus narrow, nearly covered, shell thin, plicate striate, obsoletely decussated by revolving lines, yellowish brown, corneous above the periphery, and around the umbilicus a little lighter; whorls 4½, a little descending at the aperture, tumid below and compressed around the umbilicus, lip white, subexpanded. Diam. 32, alt. 22 mill.

*Mahabaleshwar, India.*

N. BAJADERA, Pfr. Pl. 1, figs. 12–14.

Narrowly umbilicated, rather thin, diaphanous, strongly plicate, greenish or reddish brown; whorls 4, turgid, rapidly increasing, the last descending, periphery obtusely angulated, lip white, expanded. Diam. 24, alt. 17 mill.

*Bengal.*

*N. ammonia*, Val. (figs. 13, 14), is the juvenile of this species.

N. RETRORSA, Gould. Pl. 1, fig. 15.

Perforate rather thin, striate, with confluent, undulating, finely rugose, subspiral impressed lines, light chestnut or yellowish brown; whorls 5½, rapidly increasing, the last acutely carinate, base gibbous. Diam. 44, alt. 20 mill.

*Burmah.*

N. IMMERITA, W. Blanford. Pl. 1, fig. 16.

Narrowly umbilicated, reddish brown, thin, obliquely striate; whorls 4½, the last large, carinate, the carina more obtuse anteriorly, more tumid and somewhat shining below.

Diam. 25, alt. 14 mill.

*So. Canara, India.*

N. HIMALAYANA, Lea. Pl. 2, figs. 19, 17, 18.

Narrowly umbilicated, thin, pellucid, costulate above, light brown, whorls 4½–5, the last subcarinate, often obscurely brown-banded below the carina, base tumid. Diam. 30, alt. 15 mill.

*Himalaya Mts.* and *Ganges region, India.*

*M. interrupta*, Benson (figs. 17, 18), is identical.

N. LÆVIPES, Müller. Pl. 2, figs. 20, 21.

Perforate, thin, incremental striæ distinct, decussated by obscure spiral lines; light corneous; whorls 4½, the last subangulate and banded on the periphery, not descending at the aperture, inflated below. Diam. 28, alt. 14·5 mill.

*Malabar, Tranquebar.*

It is *Helix candida* and *spadicea*, Gmelin.

Var. TRIFASCIATA, Chemn. Fig. 21.

Body-whorl three-banded with chestnut.

N. CYCLOTREMA, Benson. Pl. 2, fig. 22.

Umbilicus covered, obliquely striulate, granulate, white under a corneous epidermis; whorls 4½, apex pitted, suture impressed, periphery obtusely angulated and fasciate, descending at the aperture; peristome dilated, slightly reflexed, columellar lip covering the umbilicus. Diam. 22, alt 11 mill.

*Himalaya region.*

N. BROOKEI, Adams and Reeve. Pl. 2, fig. 23.

Umbilicus nearly covered, solid, obtusely angulated on the periphery, closely striated and minutely granulated, above undulately broadly plicate, shining, chestnut-colored; whorls 5, the last minutely malleated and dark chocolate-colored below the periphery; aperture bluish white, the margins joined by a callus, columella dilated over the umbilicus. Diam. 76, alt. 45 mill.

*Borneo.*

Austen writes: The sinistral form of the shell counts for very little. H. Brookei possesses no mucous gland and therefore cannot even be included among the Zonitidæ. It is very interesting though to note that it has a right and left shell-lobe.—Shells of India, Pt. iv, 133. It is *Helix gigas*, Pfeiffer.

N. CAMBOJIENSIS, Reeve. Pl. 6, fig. 9.

Very narrowly umbilicated, solid; above fulvous with a sutural black band, below yellowish white, with a wide black band below the periphery, and a black umbilical area; whorls 6, rather smooth, slightly striate at the suture, the last with obtusely angulated periphery, aperture white within. Diam. 82 mill.

*Cambodia.*

*Helix Mouhoti*, Reeve, is a synonym.

N. GRANARIA, Bock. Pl. 2, fig. 24.

Thin, narrowly umbilicated; whorls 6, with growth-lines and finely granular spiral sculpture, producing a chagreened appearance, especially on the last whorl, which is also considerably wrinkled, with a somewhat raised keel at the periphery; olive-brown, becoming pinkish gray at the apex.

Diam. 40, alt. 31 mill.

*Mt. Sago, Sumatra*; alt. 2000 ft.

N. SUMATRENSIS, Mousson. Pl. 2, fig. 25.

Narrowly perforate, with rugose close growth-lines, and irregular spiral lines and malleate impressions; yellowish brown, with a subperipheral obscure chestnut band; whorls 6, the last not deflected in front. Diam. 51 mill.

*Sumatra.*

N. SANNIO, Pfr. Pl. 2, fig. 26.

Very narrowly umbilicated, solid, obliquely costulately striate, scarcely shining, above light yellowish brown; whorls $6\frac{1}{2}$, slowly enlarging, the last not descending, periphery angulate, below it cinnamon-colored; aperture white, shining, lip thick, shortly reflected, columellar lip dilated over the umbilicus.

Diam. 38, alt. 21 mill.

*Habitat unknown.*

N. HUGONIS, Pfr. Pl. 2, figs. 27, 28.

Very narrowly umbilicated, solid, closely and sharply granulate striate, light brownish; whorls 8, slowly increasing, yellowish brown above the suture, and at the acutely carinated periphery of the last whorl, below the carina chestnut-colored; aperture pearly, lip thin, simple. Diam. 38, alt. 22 mill.

*Ins. Labuan.*

N. MINDAIENSIS, Bock. Pl. 2, fig. 29.

Narrowly umbilicated, semitransparent; reddish brown, with a white-tipped lip; whorls 6, with finely granulated radiating striæ, the last whorl acutely keeled. Diam. 30, alt. axis 13 mill.

*Mindai, Borneo.*

Darker colored than the next species, with one whorl less, more convex, not so sharply keeled, umbilicus narrower, sculpture coarser.

N. MARSEVEENI, Bock. Pl. 3, fig. 32.

Umbilicated, thick; light-brownish horn-color, somewhat pale around the umbilicus; whorls 7, with feebly granulated, obliquely arcuate growth-lines, last whorl with a very acute, pale peripheral keel. Diam. 33, alt. axis 14 mill. *Sumatra.*

N. SACCATA, Pfr. Pl. 3, fig. 33.

Perforate, very thin, obliquely striulate, decussated by minute, crowded spiral lines, scarcely shining, pellucid, reddish corneous, suture impressed, narrowly margined; whorls 4½, rapidly enlarging, the last not descending, narrowly carinated, obliquely rugose above the carina, base convex, saccate in front.

Diam. 28, alt. 16 mill. *India.*

N. REGALIS, Benson. Pl. 2, figs. 30, 31.

Perforate, closely undulately striate and granulate, fasciated or unicolored; whorls 6, the last not descending, shining below, very minutely decussated, the circular striæ obsolete towards the umbilicus. Diam., 27 mill. *Borneo.*

Var. UNICOLOR. Purple-brown.

Var. VITTATA, Ads. and Reeve. Undulating striæ less conspicuous, lighter colored, with four reddish bands, carina and umbilical area yellowish.

Var. MAJOR. More depressed, reddish brown, without bands, umbilical area white. Diam. 34 mill.

N. JANUS, Chemn. Pl. 3, figs. 34, 36.

Perforate, thin, diaphanous, closely obliquely costulate-striate; brownish above, reddish chestnut below and somewhat shining; whorls 7, the last more or less carinate. Diam. 36 mill.

*Mt. Ophir, Malacca.*

It is *N. Mackensiana*, Soul. (fig. 36).

N. Balesteriana, Lea. Pl. 3, fig. 35.

Perforate, rather thin, obliquely subgranularly sculptured; chestnut-colored; whorls 7, the last obtusely angulated at the periphery.

*Malacca, Borneo, Sumatra?*

Pfeiffer considers this a synonym of the last species, but it appears to me to differ considerably in outline. My artist has exaggerated an effect probably of rugose growth-lines into rather conspicuous stripes.

N. Albersi, Martens. Pl. 3, fig. 37.

Narrowly perforate, with close, suboblique, minutely undulated striæ; yellowish brown above, chestnut-colored below; whorls 6, the last with an obtuse peripheral angle.

Diam. 30, alt. 18·5 mill. *Malacca.*

This, as well as the last species, is made a synonym of *N. Janus* by Pfeiffer.

N. Rumphii, Busch. Pl. 3, fig. 38.

Perforate, dark cinnamon-color, white-banded on the carinate periphery, irregularly rugulose striate above, striate below; whorls $5\frac{1}{2}$; aperture brownish within. Diam. 44 mill.

*Java.*

N. clypeus, Mousson. Pl. 3, fig. 39, 40.

Narrowly umbilicated, acutely carinate, flattened above, convex below, thin, fragile, striate, broadly rugose and obliquely subundulated above, spirally lined below, light corneous, lighter around the umbilicus, a brown line below the carina.

Diam. 1–1·5 inches. *Java.*

Var. Zollingeriana. Carina very acute, with the band well marked, the surface light yellowish brown.

Var. Jagoriana. Color reddish brown, without a band, the carina more obtuse.

N. foveata, Pfr. Pl. 3, fig. 41.

Subumbilicated, thin, with crowded subacute striæ, and revolving impressed lines, shining; whorls $5\frac{1}{2}$, cinnamon-color, the carina white, shaded below with chestnut, umbilical region lighter. Diam. 39 mill.

*India.*

N. NASUTA, Metcalfe. Pl. 3, fig. 42.

Subimperforate, very thin, obliquely striated, with light, very small concentric lines, waxy pellucid, very light greenish corneous; whorls $5\frac{1}{2}$, suture ridge-margined, last whorl not descending in front, acutely carinated. Diam. 36 mill.

*Borneo.*

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*Unfigured Species.*

N. TAIVANICA, Mollend. *Formosa.*
N. LINDSTEDTI, Pfr. *Malacca.*
N. SARAWAKANA, Dohrn. *Borneo.*

Subgenus CŒLATURA, Pfr., 1877.

N. CŒLATURA, Fér. Pl. 3, fig. 43.

Imperforate, rather solid, the incremental striæ distinct, crossed by irregular distant revolving lines; whorls 4 or 5, dark brown; lip somewhat thickened. Diam. 28 mill.

*Ins. Bourbon.*

The synonymy includes *N. exarata*, Wiegm, and *N. rufina*, Jay.

N. DUPONTI, Morelet. Pl. 3, figs. 44, 45.

Imperforate, solid, with crowded oblique striæ, and distant spiral sulci; reddish brown; whorls 5, the last deflected in front; lip thickened, its extremities connected by a parietal callus. Diam. 40 mill.

*Mauritius* (subfossil).

*N. sulcifera*, Barclay (fig. 45), is considered a synonym.

N. BEWSHERIANA, Morelet. Pl. 3, fig. 46.

Imperforate, arcuately costate-striate; whorls $5\frac{1}{2}$, the last obtusely angulated on the periphery, angle evanescent towards the aperture; peristome angularly incurved above; bleached white. Diam. 33, alt. 19 mill. *Ins. Rodriguez.*

Subfossil.

N. SIMPLEX, Lam. Pl. 3, fig. 47.

Imperforate, obliquely striate, light reddish brown, with darker fasciations, apex reddish. Diam. 40 mill.

*Amboina.*

A doubtful member of the group.

N. SCALPTA, Martens. Pl. 4, figs. 48–51.

Perforate, thin, closely striate, decussated by obsolete spiral lines; reddish horn-color; whorls 6, the last angulated on the periphery, the angle becoming evanescent in front.

Diam. 19 mill.

*Mauritius.*

This is *Helix rufa*, of Pfr. and Reeve, but not of Lesson, the latter being identical with *H. Novæ-Hiberniæ*, of Quoy. *N. semifusca*, Desh. (figs. 50, 51), is probably the same, although the characteristic spiral sculpture is neither described nor shown in the figure.

Subgenus ROTULA, Albers, 1850.

N. LINOPHORA, Morelet. Pl. 4, figs. 52, 53.

Barely perforate, thin, costulate; corneous brown or greenish, epidermis whitish, chiefly remaining at the suture and below the carina; whorls, 6. Diam. 12 mill.

*Ins. Bourbon, Mauritius.*

N. SEMICERINA, Morelet. Pl. 4, figs. 54, 55.

Scarcely perforate, costulate-striate, thin; brownish or greenish corneous, sometimes with a single brown band above the carina, darker below, with a wide light band beneath the carina; whorls 6. Diam. 16 mill.

*Mauritius.*

*N. Rawsonis*, Barclay, is a synonym.

N. BIJUGA, Stoliczka. Pl. 4, figs. 56–59.

Narrowly umbilicated, thin, corneous, light yellowish brown; whorls $5\frac{1}{2}$–$6\frac{1}{2}$, suture simple, rarely thread-margined above, closely obliquely costulate, and more or less distinctly crossed by still closer revolving striæ, crispate or subgranular, smoother below the peipheral carina, except a couple of impressed spiral striæ immediately under it. Diam. 17 mill.

*Penang.*

N. ARGENTEA, Reeve. Pl. 4, fig. 60.

Perforate, thin, smoothish, lightly and very minutely decussated; greenish brown, pellucid, with wide silvery epidermal bands; whorls 6, the last not descending. Diam. 13 mill.

*Mauritius and Isle of Bourbon.*

*N. semicerina*, var. *turbinata*, Morelet, is a synonym.

N. ANCEPS, Gould. Pl. 4, figs. 61, 62.

Scarcely perforate, light corneous, striated above, shining below; whorls 6, smooth below the periphery. Diam. 17 mill.

*Tavoy, Burmah.*

N. ARATA, Blanford. Pl. 4, figs. 70, 71.

Imperforated, thin, corneous, obliquely plicate-striate above, below smooth, a little shining, radiately striulate; whorls 7, suture submarginate. Diam. 17–23 mill.

*Ava, Yunnan.*

Very close to *N. anceps*, but the spire is higher, the umbilical region more excavated, the peripheral keel less acute, and the epidermis darker.

N. SERRULA, Benson. Pl. 4, figs. 63–65.

Narrowly umbilicated, whitish horn-color; whorls 7, closely plicatulate above, serrulating the peripheral carina—which is impressed margined below. Diam. 14 mill.

*Bengal.*

N. BENSONI, Busch. Pl. 4, fig. 66.

Perforate, grayish white, acutely crenulately carinate; whorls 6, the last scarcely striate on the base. Diam. 12 mill.

*Bengal.*

N. SOLIDULA, Pfr. Pl. 4, fig. 67.

Scarcely perforate, somewhat solid, obliquely costulate-striate, brownish; whorls $5\frac{1}{2}$, suture submargined, base with obsolete spiral lines; columella callously thickened, nearly closing the perforation. Diam. 12 mill.

*Habitat unknown.*

N. CLIMACTERICA, Benson. Pl. 4, figs. 68, 69.

Imperforate, whitish under an olivaceous epidermis, above sharply radiately plicate, smoother below; whorls 8, narrow, spire gradate. Diam. 19 mill.

*Bengal.*

N. AUSTENI, Blanford. Pl. 4, figs. 72, 73.

Imperforate, thin, corneous, above closely arcuately costulate, the riblets vanishing below the carina, polished, radiately striulate; whorls $6\frac{1}{2}$, narrow, slightly gradate; umbilical region impressed. Diam. 15 mill.

*Mt. Garo, India.*

The spire is higher than in *N. climacterica*, the aperture more rhomboidal.

N. RECEDENS, Pfr. Pl. 5, fig. 78.

Imperforate, solid, closely costulately striate above, light flesh color; whorls 6, narrow, carina brown-banded, base flattened and striate. Diam. 12 mill.

*Hab. unknown.*

N. KASHMIRENSIS, Nevill. Pl. 5, figs. 13–15.

Umbilicus narrow, subplicate above, smoother below, minutely punctate. Diam. 7·5, alt. axis 3·75 in.

*Sonamarg, Kashmir.*

N. IMPLICATA, Nevill.

Shell like *N. semicerina*, but entirely smooth, whorls more depressed and concave, the last scarcely carinate; coloration similar.

*Peter Botte Mt., Mauritius.*

Unfigured.

Section PACHYSTYLA, Morch, 1852.

N. INVERSICOLOR, Fér. Pl. 6, figs. 89–92.

Imperforate, acutely carinate, striate and spirally lineate; light chestnut-colored to dark chocolate, almost black, the lighter colored specimens having a darker base, unicolored or obscurely darker-banded at the suture and below the periphery, or sometimes angularly and irregularly marked and clouded with gray on the upper surface; aperture from chestnut-color to dark purple. Diam. 39, alt. 22 mill.

*Mauritius.*

It is *N. bicolor* and *N. Mauritiana* of Lamarck, and *N. Puerocunæ*, Peron; the juvenile is *N. plebeja*, of the Berlin Museum, teste Anton.

N. MAURITIANA, Pfr. Pl. 6, figs. 93, 95.

Imperforate, rather solid, finely striated, microscopically decussated by close, slight spiral impressed lines; yellowish brown, often lighter colored below, columella white, interior of aperture flesh-color. Diam. 22, alt. 17 mill.

*Mauritius.*

This is *N. stylodon* of Reeve, not Pfeiffer. The description is from the adult, described by Pfr. as *N. leucostyla* (fig. 95), that of the juvenile *N. Mauritiana* having priority; the latter is subperforate.

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N. MAURITIANELLA, Morelet. Pl. 6, figs. 96, 97.

Imperforate, umbilical region impressed, upper surface rather rugosely striate, base smoother; horn-color or yellowish brown, the peripheral angle often a narrow darker band, lip flesh-brown. Diam. 17, alt. 10–12 mill.

*Mauritius.*

Is very like a *N. inversicolor* in miniature.

N. RUFOZONATA, H. Adams. Pl. 6, fig. 100.

Scarcely perforate or imperforate, umbilical region impressed, closely rugosely arcuately striate above, smoother below; light yellowish brown, with a dark chestnut band on the obtusely angulated periphery, and a broader band at the suture; whorls 6. Diam. 15, alt. 8·5 mill.

*Mauritius.*

N. NEVILLI, H. Adams. Pl. 6, fig. 98.

Scarcely perforate, somewhat solid, closely arcuately striated above, the striæ granulose; yellowish brown; whorls 8, the last not descending at the aperture, subangulate on the periphery; margin of aperture acute, labiate within. Diam. 12, alt. 7 mill.

*Mauritius.*

Differs from *N. rufozonata* in having no bands, but two additional whorls, although smaller, and in some minor particulars.

N. DETECTA, Fér. Pl. 5, figs. 75–77; pl. 6, figs. 3, 4.

Imperforate, lenticular, strongly keeled, costulately striate; whorls 5½, keel prominent, in all the whorls appressed to the suture; yellowish brown. Diam. 14, alt. 6 mill.

*Ins. Bourbon.*

*N. Bewsheri*, H. Adams (fig. 77) is certainly a synonym, and I think that *N. Frappieri*, Desh. (figs. 3, 4) may also be placed here.

N. BARCLAYI, Benson. Pl. 6, figs. 1, 2.

Minutely umbilicated, horny, rough, rudely obliquely lightly striated; whorls 5 to 6, with margined suture, last whorl obtusely keeled, more convex beneath. Diam. 5, alt. 3 mill.

*Mauritius.*

*N. Eudeli*, Desh. (fig. 2), the sole example of which was crushed after being drawn, but prior to description, may possibly be this species as surmised by Nevill; it appears, however,

to have been smoother and lighter colored and somewhat larger, 7 mill. diam.

N. Rodriguensis, Crosse. Pl. 6, fig. 99.

Scarcely umbilicated, thin, strongly striate, and with microscopic spiral lines; olivaceous brown; whorls 5½, suture well marked, the last whorl obtusely angulated on the periphery, nearly smooth and somewhat shining on the base.

Diam. 12, alt. 7 mill.

*Ins. Rodriguez.*

Rather distantly related to the several foregoing species.

Section Stylodonta, Jan., 1832.

N. unidentata, Chemn. Pl. 6, figs. 84, 85.

Imperforate, striated, sculptured with concentric wrinkles and oblique decussating minute lines; yellowish brown to dark chestnut-colored; whorls 6, the last angulated and sometimes narrowly banded on the periphery; lip slightly expanded; columellar tooth-like fold large. Diam. 2, alt. 1·75 inches.

*Seychelles Is.*

*N. militaris*, Pfr. (unfigured), may be the more depressed form of this species (fig. 85). The synonymy includes *N. microdonta*, Desh.; *N. ventricosa*, Jan.; *N. uniplicata*, Mörch.

N. cepoides, Lea. Pl. 6, figs. 86, 87.

Imperforate, plicate-striate, here and there obsoletely spirally striate; whorls 6½, convex; brownish above, yellowish brown beneath, often narrowly brown banded at the suture and periphery, these bands frequently overlaid by a fugacious coloring of yellowish white or pure white, more or less broken up into patches; aperture narrow, oblique, the lip expanded, the columellar plication distinct. Diam. 2, alt. 1·75 inches.

*Philippine Islands.*

*N. dolium*, Sowb., is a synonym.

N. Studeriana, Fér. Pl. 6, fig. 88.

Imperforate, rather thin, obliquely striated and transversely very minutely wrinkled; whorls 6, upper ones rather flattened, elegantly granulated, the last obsoletely angled or marked at the periphery with an impressed groove; dark brown or olive-brown,

the reflected lip and slightly twisted columella and interior of aperture white. Diam. 2·7, alt. 2·4 inches.

*Seychelles Is.*

The columellar plication is obsolete or represented by a slight bulge and twist of the thickened columella.

N. STYLODON, Pfr. Pl. 6, fig. 7.

Imperforate, finely wrinkled-striate, chestnut-brown, with a narrow, darker peripheral band; whorls 5½; aperture sharp margined, with a long obliquely spiral columellar plication.

Diam. 13, alt 8 mill.

*Mauritius.*

It is *N. depressa*, Fér.; *N. monodonta*, Grat.; *N. albidens*, Benson.

N. SCALPRUM, Val. Pl. 6, fig. 8.

Narrowly perforate, striate; whorls 4½, the last strongly keeled; columella with a small, distinct plication. Diam. 15, alt. 7·5 mill.

*Habitat unknown.*

N. ODONTINA, Morelet. Pl. 6, figs. 5, 6.

Narrowly umbilicated, whorls 6, rounded; light horn-color, or whitish, umbilicus with an oblique tooth. Diam. 8, alt. 6 mill.

*Mauritius.*

It is *N. Lightfooti*, Pfr. (fig. 6), erroneously assigned to Australia, and *N. suffulta*, Benson (fig. 5).

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N. CALDWELLI, Barclay. (Unfigured.) *Mauritius.*

Section CALDWELLIA, H. Adams, 1873.

N. PHILYRINA, Morelet. Pl. 4, fig. 74.

Imperforate, very thin, membranaceous, obliquely rugulose, with very close, slight spiral lines, pellucid, greenish corneous; whorls 4, rapidly increasing, apex mucronate, suture impressed, last whorl not descending, acutely keeled; lip acute.

Diam. 17, alt. 9 mill.

*Mauritius.*

*N. mucronata*, Pfr., is a synonym.

N. IMPERFECTA, Desh. Pl. 5, figs. 81, 82.

Imperforate, thin, pellucid, light brown; whorls 5, the first two smooth, mamillate, the rest flattened, suture margined, minutely transversely striate, the last carinate.

Diam. 11, alt. 7 mill.

*Isl. Bourbon, Mauritius.*

N. CERNICA, H. Adams. Pl. 5, fig. 83.

Imperforate, very thin, membranaceous, obliquely longitudinally striate, minutely decussated by spiral lines, yellowish horn-color; whorls 4, apex obtuse, suture lightly impressed; last whorl acutely carinated, descending in front.

Diam. 10, alt. 8 mill. *Mauritius.*

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N. BORYANA, Morelet. (Unfigured.) *Mauritius.*

Subgenus RHYSOTA, Albers, 1850.

N. VIRENS, Martens. Pl. 7, fig. 14.

Perforate, obliquely striate, the last whorl with impressed not crowded spiral lines, and rare oblique rugæ, shining, green, with a narrow obscure chestnut band at the periphery, spire convex, reddish brown, suture crenulate-striate; whorls 5, the last not deflexed. Diam. 43, alt. 29 mill.

*Sumatra.*

This may be *N. tumens*, Desh., a shell originally referred by Pfeiffer and others to the synonymy of *N. cidaris*, Lam.

N. LIMBIFERA, Martens. Pl. 7, figs. 15, 16.

Perforate, rather solid, striulate, with elevated, not crowded undulating spiral lines and short oblique, distant, slight rugæ; somewhat shining, yellowish or chestnut color, with a moderate peripheral band, and lighter border below it, umbilical region chestnut; whorls 5½, suture submargined.

Diam. 36–43, alt. 25–33 mill.

*Celebes.*

N. ERRATICA, Hende. Pl. 7, fig. 21.

Perforate, rather thick, concentrically and spirally striate, yellowish chestnut, two-banded; columella arcuate, half covering the umbilicus; outer lip sharp. Diam. 41, alt. 27 mill.

*Province of Hue-bei, China.*

N. STOLEPHORA, Val. Pl. 7, fig. 17.

Subperforate, rather smooth, obliquely striate, very light reddish brown, with a broad reddish band below the peripheral angle, base lighter, reticulately striate; whorls 4.

Diam. 52, alt. 20 mill.

*Philippines.*

It is *N. buphthalmus*, Fér., and *N. bicolor*, Pfr.

N. SAGITTIFERA, Pfr. Pl. 7, figs. 18–20.

Subperforate, depressed, thin, pellucid, obliquely striate and obsoletely rugose; brown, with chestnut-colored arrow-shaped maculations and obsolete band at the peripheral angle; whorls $4\frac{1}{2}$, suture impressed, canaliculate at the last whorl; aperture white. Diam. 47, alt. 26 mill.

*Philippines.*

Var. HEPATICA, Reeve. Fig. 20.

More distinctly carinate, chestnut brown above, with a blackish band below the carina, base olive-brown, arrow-shaped maculations obscure.

Var. MAJOR, Pfr.

Thicker and larger. Diam. 67, alt. 35 mill.

N. BORNEENSIS, Pfr. Pl. 8, fig. 23.

Narrowly umbilicated, the umbilicus partly covered by the dilated columellar lip, decussately striated, chestnut-brown; whorls 4, the last one obtusely angulated on the periphery with a dark chestnut band below the angle, base sometimes irregularly strigate with chestnut. Diam. 52, alt. 25 mill.

*Borneo.*

N. DVITIJA, Semper. Pl. 8, fig. 24.

Subperforate, solid, shining, yellowish brown, greenish at the suture and base, closely irregularly sculptured with small rugæ, with remote concentric striæ; whorls 4, suture subplicate, periphery rounded; peristome with a narrow dark exterior marginal zone; columella subplicate or twisted.

Diam 44, alt. 26 mill.

*Ins. Luzon, Philippines.*

N. SOWERBYANA, Pfr. Pl. 8, fig. 25.

Subperforate, solid, somewhat shining, subdecussated by close concentric, and more distinct incremental striæ; olivaceous

brown; whorls 4½, rapidly increasing, the last obliquely depressed, dilated in front; aperture oblique, lip white, inflexed and thickened in old specimens, the extremities connected by a parietal callus. Diam. 52, alt. 25 mill.

*Caroline Islands.*

The synonyms are *N. Hogoleuensis*, Le Guill., and *N. pachistoma*, Hombr. et Jacq.

N. DISTINCTA, Pfr. Pl. 8, fig. 26.

Umbilicated, rather thin, with growth-lines, and lightly impressed spiral striæ, slightly vermicularly rugose above, less distinctly so below; varying from light yellowish brown to salmon-brown, the darker colored specimens with a light band on the scarcely angulated periphery; whorls 5½, lip thin.

Diam. 56, alt. 32 mill.

*Cochin China, Siam.*

N. OVUM, Val. Pl. 8, fig. 29.

Imperforate when adult, solid, obliquely striate, sparsely spirally lineate and very lightly vermiculate; yellowish brown or chestnut-brown, unicolored, or with a light band above the periphery, and a darker band below it; whorls 5, the last with an obtuse peripheral angle, above which it is obliquely depressed, suture well impressed, base excavated around the umbilicus, into which a columellar callus is deeply impressed; aperture white. Diam. 115, alt. 70 mill.

*Is. of Luzon and Panay, Philippines.*

It is *N. meridionalis*, Wood, *N. Otaheitana*, Fér., *N. Taheitana*, Hartm.

N. RHEA, Pfr. Pl. 9, fig. 30.

Imperforate when adult, solid, striate and with deeply impressed vermicular sulci, giving the surface a rugose appearance; chestnut-colored, darker on the base, the periphery with a light colored band, and a darker one below it; whorls 5, round-shouldered below the suture, the last obsoletely angled at the periphery, obliquely flattened above, rounded beneath; aperture white, the columellar callus deeply impressed into the umbilicus.

Diam. 69, alt. 37 mill.

*Isl. Panay, Philippines.*

Much more rugosely sculptured than *N. ovum*, with more shouldered whorls.

N. MINDANAENSIS, Semper. Pl. 9, fig. 31.

Perforate, solid, rugosely striate, brown, with a blackish peripheral line; whorls $5\frac{1}{2}$, suture impressed, first whorls plane, the last two rounded, subcarinate.

Diam. 44–57 mill., alt. 22–31 mill.

*Ins. Mindanao, Philippines.*

N. BASILEUS, Benson. Pl. 10, fig. 36.

Narrowly umbilicated, irregularly striulate, becoming folded toward the suture, with obsolete spiral sulci, more numerous on the base, and oblique rugæ; whitish, under a deciduous yellowish epidermis, with a wide chestnut band under the periphery; interior chestnut-tinged with a median white band having an inferior dark chestnut border; whorls 5, the last not descending, subangulate at the periphery. Diam. 72, alt. 36 mill.

*Anamully Hills, Central India.*

It is *N. Titanica*, Pfr.

N. GERVAISII, Dubrueil. Pl. 9, fig. 35.

Umbilicus small, subcallous, solid, longitudinally striate, last whorl malleate; horny-red colored, interior white; whorls 7, the last subcarinate on the periphery. Diam. 83, alt. 35 mill.

*? Philippines.*

N. MULLERI, Pfr. Pl. 10, fig. 37.

Scarcely umbilicated, solid, minutely rugosely reticulated, irregularly malleate; chestnut-color; base darker, red spotted below a subperipheral dark band; whorls $4\frac{1}{2}$, the last subangulate.

Diam. 39, alt. 23 mill.

*Isl. Mindoro, Philippines.*

Is *N. ovum*, Pfr., var.

N. MAXIMA, Pfr. Pl. 10, fig. 38.

Narrowly perforate, solid, ponderous, irregularly striate by growth lines; chestnut brown above the periphery, with yellowish bands, various in number, wider or narrower, below the periphery dark chocolate, not banded; whorls $6\frac{1}{2}$, with deeply impressed suture, the last angulate on the periphery; aperture pale bluish, showing white bands; lower margin of lip thickened within. Diam. 90, alt. 42 mill.

*Philippines.*

N. Oweniana, Pfr. Pl. 10, fig. 39.

Perforate, thin, above radiately striate, decussated by very close spiral lines; yellowish brown, peripheral angle whitish, with a chestnut band below it, base greenish brown, shining with irregular spiral impressed lines; whorls $4\frac{1}{2}$, the last not descending, obtusely angulate at the periphery; columella oblique, sinuous above. Diam. 32, alt. 17 mill.

*Philippines.*

N. Lamarckiana, Lea. Pl. 10, figs. 40, 41.

Obliquely perforate, rather thin, rugosely striate, crossed by impressed spiral lines, obliquely obsoletely rugulose; yellowish brown above, periphery lighter, with a chestnut band below it, base olivaceous brown; whorls $4\frac{1}{2}$, the last not descending, periphery angulated. Diam. 60, alt. 32 mill.

*Philippines.*

Var. caducior, Reeve. Fig. 41.

Shell smaller, thinner, lighter colored, more acutely angulated. Diam. 55, alt. 24 mill.

N. Antonii, Semper. Pl. 11, fig. 44.

Covered perforate, solid, with incremental and spiral impressed striæ, and slight oblique rugæ; olivaceous brown, irregularly strigate, the periphery dark chocolate, base more shining; whorls $4\frac{1}{2}$, suture white-bordered, last whorl with obsolete peripheral angle; lip somewhat thickened. Diam. 62, alt. 30 mill.

*Ins. Luzon.*

N. porphyria, Pfr. Pl. 10, fig. 42.

Imperforate when adult, moderately solid, obliquely rugosely striate, with impressed spiral lines visible principally on the base; light reddish brown with yellowish white irregular callous deposits on the upper part forming a marbled or obliquely verrucose raised ornamentation; a brown band below the periphery, base olivaceous brown, shining; whorls $4\frac{1}{2}$, the last angulated at the periphery, excavated around the umbilicus.

Diam. 43, alt. 26 mill.

*Isle of Burias, Philippines.*

N. Zeus, Jonas. Pl. 11, fig. 46.

Obliquely perforate, solid, with oblique rugæ and elevated spiral striæ; reddish, ornamented above with zigzag white

streaks, dark banded below the periphery, and deeply spirally grooved; whorls 4½, the last angulated on the periphery.

Diam. 60, alt. 30 mill.

*Isl. Mindoro, Philippines.*

Is possibly an extreme variety of the preceding species.

N. URANUS, Pfr. Pl. 11, fig. 45.

Perforation covered, closely slightly striate, with unequal slight concentric striæ; olivaceous brown, whorls 4½, the last strongly angulated. Diam. 68, alt. 28 mill.

*Ins. Polillo, Philippines.*

N. MARTINI, Pfr. Pl. 10, figs. 43, 47.

Narrowly umbilicated, rather thin, closely obliquely granularly striate; light chestnut-brown, often tinged with olivaceous on the spire and base; whorls 7–8, slowly increasing, periphery acutely angulated. Diam. 35–43, alt. 16–21 mill.

*Pedang, Isl. of Sumatra.*

*N. Mackensiana*, Souleyet, and *N. Balesteriana*, Lea, are both sinistral shells, and the former has been placed by me in the synonymy of *Ariophanta Janus;* but Pfeiffer considers them identical with the present species. *N. amphidroma*, Martens, is said to be both dextral and sinistral; the dextral form, at least (fig. 47), may be considered a smaller variety of the present species.

N. RIBBEI, Böttger. Pl. 10, fig. 48.

Moderately umbilicated, arcuately striate; yellowish brown under a deciduous epidermis; whorls 5½, the last not descending, with acutely carinate, plicate periphery, radiately striate on the base; extremities of the lip connected by a parietal callus.

Diam. 26, alt. 11 mill.

*Celebes.*

N. PERNOBILIS, Fér. Pl. 8, fig. 28.

Umbilicated, smooth, rather thin, decussately striate, and very slightly malleate; olivaceous brown; whorls 5½, suture well-impressed, periphery subangulate; interior bluish white.

Diam. 65, alt. 42 mill.

*Siam.*

The figure of this species in Férussac is not recognizable, so that Pfeiffer's identification of it with the Siam form, as given

above, is only conjectural. It is possibly *N. lampas*, Martyn, and is very closely allied to *N. Neptunus*, Pfr., if not identical with it.

N. NEPTUNUS, Pfr. Pl. 8, fig. 27.

Umbilicated, rather thin, slightly foveolate by incremental striæ and spiral lines; olivaceous brown, somewhat shining; whorls 5½, the last not descending, periphery obsoletely subangulated, base faintly fasciate with chestnut, interior whitish. Diam. 74, alt. 41 mill.

*Siam.*

N. HEPATIZON, Gould. Pl. 9, fig. 34.

Peforation covered, solid, closely obliquely granulosely striate, decussated by thinner concentric lines; dark chestnut-color, including the interior; whorls 5½, the last obliquely corrugated, with obsoletely angled or rounded periphery; lip thickened, the extremities joined by a thin, shining, parietal callus.

Diam. 35, alt. 19 mill. *Liberia.*

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N. BALSTONI, Angas. Pl. 28, fig. 3.

Perforated, thin, sculptured all over with extremely fine, close-set, engraved lines, crossing obliquely both ways and giving the surface a delicately shagreened appearance under the lens; fulvous horn-color; whorls 6, the last sharply keeled, not descending anteriorly. Diam. 29, alt. 14·5 mill.

*Interior of Madagascar.*

Distinguished by its sculpture and fragility. In the original description it is said to be imperforate, but Mr. E. A. Smith (Zoöl. Proc. 379, 1882) mentions that specimens in the British Museum are narrowly perforated.

N. EKONGENSIS, Angas. Pl. 28, fig. 6.

Narrowly perforated, very thin, the oblique growth-lines crossed by exceedingly fine, close-set concentric lines; pale horn-color, with one narrow brown band above the suture on the upper whorls, and two on the last whorl, one on either side the subangulate periphery; whorls 6, the last not descending.

Diam. 22, alt. 12 mill.

*Madagascar.*

N. FUSCOLUTEA, Grat. Pl. 22, fig. 26.

Scarcely perforated, thin, shining, pellucid, very delicately longitudinally striated; corneous brown above, yellowish white below, last whorl with a pale peripheral band, and another just below the suture, the latter showing on the spire; whorls 5–6, periphery rounded. Diam. 16, alt. 10 mill.

*Madagascar.*

*Unfigured Species.*

N. RUBICUNDA, Pfr. *Habitat unknown.*

N. CORROSA, Mousson. *Java.*

N. HILDEBRANDTI, N. THALIA, N. HESTIA, N. BASALIS, N. ANOBRACHYS, Dohrn. *Madagascar.*

The systematic position of these is doubtful.

Section HEMIPLECTA, Albers, 1850.

N. STRIATULA, Semper. Pl. 7, figs. 10–12.

Imperforate, thin, yellowish horn-color, densely thread-striate above; whorls $6\frac{1}{2}$, slowly increasing, the last not descending, shining below. Diam. 22, alt. 15 mill.

*Ins. Luzon, Philippines.*

N. GLOBOSA, Semper. Pl. 7, fig. 13.

Covered perforate, thin, minutely granularly striate; brown, irregularly striate and maculate with darker brown; whorls $5\frac{1}{2}$, the last obsoletely carinate, suture scarcely impressed, smooth and shining below, a narrow brown band below the carina.

Diam. 41, alt. 24 mill.

*Isl. Mindanao, Philippines.*

N. FUCHSIANA, Heude. Pl. 7, fig. 22.

Umbilicated, solid, above thickly rugulosely striate, crossed by spiral lines, nearly smooth below; wine-red or brownish; whorls $5\frac{1}{2}$, the last obsoletely carinate. Diam. 34, alt. 20 mill.

*Province of Hunan, China.*

N. CLAIRVILLIA, Fér. Pl. 11, figs. 49, 50.

Perforate, obliquely striate, base smoother; yellowish, becoming darker above and deepening into brown on the spire; whorls 6, the last tumid; lip white, obtuse.

Diam. 43, alt. 32 mill.

*Amboina.*

N. RUGATA, Martens. Pl. 9, figs. 32, 33.

Narrowly perforate, closely rugose, and minutely granulose above; reddish brown, with a white peripheral band, sometimes reappearing on the spire; whorls 6, the last not deflected in front, obtusely angulated on the periphery.

Diam. 48, alt. 32 mill.

*Celebes, Timor.*

This is *N. cidaris* (fig. 32), of Gray and Pfeiffer, not Lamarck, and *N. Clairvillia* of Reeve (fig. 33), not Férussac.

N. MUMIA, Hombr. et Jacq. Pl. 11, fig. 51.

Narrowly umbilicated, irregularly striate above and with spiral lines on the last whorl, base regularly striate; brown, with a yellowish band above the periphery, below it lighter colored; whorls $5\frac{1}{2}$; columellar lip reflected, having a dentiform plication.

Diam. 45, alt. 25 mill.

*Habitat unknown.*

N. HUMPHREYSIANA, Lea. Pl. 11, figs. 52, 53; Pl. 12, fig. 54.

Openly umbilicated, decussated and minutely granulosely rugose above, below without rugæ; yellowish brown, with a chestnut peripheral band; whorls 6–7. Diam. 53, alt. 33 mill.

*Pondichery, Singapore, Sumatra.*

*N. nobilis*, Reeve, is a synonym.

Var. GEMINA, von dem Busch. Fig. 54.

Umbilicus narrower, periphery yellowish brown, with a chestnut band above and another below it.

*Java.*

Var. COMPLANATA, von Martens. Fig. 53.

Shell more depressed, the whorls less convex.

N. UNDOSA, Blanford. Pl. 12, fig. 55.

Narrowly umbilicated, rather solid, growth-lines oblique, rugose, with irregular sinuous spiral striæ above the periphery; straw-color, sometimes stained darker on the spire, and around the umbilicus; whorls 5, the last with subplicate carina on the periphery. Diam. 36, alt. 21 mill.

*Ava.*

The only figure published (copied above) has the growth-lines much more rugose than in the type, whilst the spiral sculpture is obsolete; it is an extreme variety at least.

N. PLUTO, Pfr. Pl. 12, fig. 56.

Umbilicated, rather solid, above spirally and obliquely minutely striate, below with subundulating spiral striæ around the umbilicus; chocolate brown, often indistinctly lighter banded, extending below the periphery, most of the base yellowish brown; aperture similarly colored; whorls $5\frac{1}{2}$, the last distinctly angulated above the middle.

Diam. 61, alt. 30 mill.

*Cambodia.*

N. ROSAMONDA, Benson. Pl. 12, fig. 57.

Perforate, rather thin, arcuately rugosely striate, with close granulated lines above, decussated below by obsolete spiral striæ; orange-brown, or olivaceous yellow becoming brown on the spire; whorls $5\frac{1}{2}$, suture submargined, periphery obsoletely angulated and subplicate. Diam. 37, alt. 24 mill.

*Ceylon.*

N. NOBILIS, Pfr. Pl. 12, fig. 58.

Narrowly umbilicated, rather solid, striate, decussated by spiral and oblique impressed lines; orange-brown, with a narrow chestnut band below the periphery, lighter colored around the umbilicus; aperture bluish white; whorls 6, the last with a narrow peripheral carina. Diam. 53, alt. 30 mill.

*Borneo.*

N. HERKLOTSIANA, Dohrn. Pl. 12, fig. 59.

Umbilicated, rather thin, closely obliquely and distantly spirally striate above; reddish brown or yellowish brown, fading to whitish on the base, the periphery with a narrow yellowish band, bordered below with dark chestnut, the latter sometimes appearing at the suture; whorls $5\frac{1}{2}$, the last subangulate on the periphery. Diam. 38, alt. 22 mill.

*Java.*

N. BULLA, Pfr. Pl. 12, figs. 60, 61.

Subperforate; very thin, pellucid, very minutely decussated by close, spiral and oblique striæ; light yellowish brown, with a chestnut band on the periphery; whorls 4, the last angulated on the periphery; interior unifasciate; upper margin of aperture inflexed. Diam. 40, alt. 23 mill.

*Ins. Luzon, Philippines.*

It is *N. vesica*, Pfr.

N. Chenui, Pfr. Pl. 12, fig. 62.

Subperforate, rather thin, malleate, with subrugose incremental and impressed spiral striæ; yellowish- or olivaceous-brown, with a light narrow peripheral band and a chestnut band below it; whorls $4\frac{1}{2}$, a little rugose at the suture, the last obtusely angulate at the periphery. Diam. 40, alt. 20 mill.

*Ceylon.*

N. Beddomei, Blanford. Pl. 12, fig. 63.

Openly perforate, rather thin, decussated by oblique striæ and spiral lines, obliquely shortly sulcate above; smoother and shining below, with radiating, and small subspiral impressed lines; corneous-white, or light brownish, with a wide chestnut band below the periphery, becoming yellowish or whitish on the base; whorls $4\frac{1}{2}$, the last obtusely angulated; aperture opaline, brownish, with the chestnut band. Diam. 50, alt. 24 mill.

*Travancore, Southern India.*

More openly perforate, more angulated on the periphery than *N. Chenui;* the sculpture, though generally similar, shows marked distinctions.

N. Sisparica, Blanford. Pl. 13, fig. 64.

Openly, narrowly umbilicated, rather thin, striate; yellowish brown; whorls 4, suture linear, submargined, periphery of last whorl obtusely angulated; aperture white, opaline.

Diam. 37, alt. 18 mill.

*Sispara ghat, Nilgiri hills, Central India.*

N. Cuvieriana, Lea. Pl. 13, figs. 65, 66.

Subperforate, thin, pellucid, decussated above by growth-lines and close spiral striæ, smooth and shining below; yellowish olivaceous, narrowly chestnut banded below the carina, base darker colored; whorls 5, flattened above, convex below.

Diam. 32, alt. 14–15 mill.

*Ins. Luzon, Philippines.*

N. exilis, (Müller?) Pfeiffer. Pl. 13, figs. 67, 68.

Perforate, carinate, thin, pellucid, sharply striate above, the base smoother; light yellowish brown, with a narrow chestnut band below the periphery, and chestnut tinged around the umbilicus; whorls 6, the last angulated on the periphery.

Diam. 35, alt. 15 mill. *Philippines* (Cuming).

N. EXPLANATA, Quoy and Gaimard, Pl. 13, fig. 69.

Perforate, thin, closely obliquely striulate, mingled with wider striæ, smoother below; reddish brown, lighter below; becoming whitish towards the centre; whorls 6, the last acutely carinated on the periphery, with a narrow chestnut band below.

Diam. 30, alt. 12 mill.

*New Guinea.*

The *N. exilis* of Müller is indeterminable, but Pfeiffer and others have identified it with a shell brought by Cuming from the Philippine Islands, and have included as a synonym *N. explanata*, Quoy and Gaimard. The two species are distinct, although very similar in their characters, as pointed out by Dr. von Martens.

N. DIVISA, Forbes. Pl. 13, fig. 70.

Perforate, rather thin, obliquely striate above, obsoletely decussated by impressed lines, base smoother, shining; orange brown, lighter around the umbilicus; whorls 5, the last with a compressed carina on the periphery, suture margined.

Diam. 24, alt. 9·5 mill.

*Louisiade Is.*

N. HAUGHTONI, Benson. Pl. 17, fig. 51.

Perforate, rather solid, irregularly obsoletely plicatulate above, crossed by very fine spiral striæ, smoother below; olivaceous brown, interior of aperture flesh brown; whorls $4\frac{1}{2}$–5, suture thread margined, shortly plicate, last whorl obtusely slightly angled on the periphery, and again around the umbilicus; columellar lip oblique, slightly callously dentate.

Diam. 31, alt. 19 mill.

*Andaman Is.*

*N. Chambertinii*, Tryon, is a synonym.

N. NOVÆ-HIBERNIÆ, Quoy. Pl. 13, fig. 73.

Narrowly perforate, thin, rugulosely obliquely striate above and slightly malleated, smoother but microscopically malleated and spirally lineated below; light brownish, with a narrow chestnut line, bordered below by a yellowish line on the periphery, base very light yellowish brown; whorls 6, the last obtusely angulated on the periphery. Diam. 19, alt. 10 mill.

*New Ireland.*

N. Cartereti, E. A. Smith. Pl. 13, figs. 71, 72.

Narrowly perforate, rather solid, with oblique growth-lines and minute microscopic spiral striæ; fulvous brown above, paler below, whorls 7, the last obtusely angular at the periphery, and peculiarly narrowed a little behind the aperture; aperture flesh-tinted within. Diam. 22, alt. 15 mill.

*Wild Isl., Admiralty Archipelago.*

Differs from the preceding species in having no band on the periphery and in the narrowing of the last whorl.

N. Darondeaui, Souleyet. Pl. 13, fig. 74.

Umbilicated, obliquely rugose, spirally striated; olivaceous brown, chestnut-colored beneath; whorls five, the last strongly carinate, carina lighter colored; aperture light chestnut, with a yellowish band. Diam. 41, alt. 19 mill.

*Ins. Luzon, Philippines.*

N. Souleyetiana, Pfr. Pl. 13, fig. 75.

Perforate, rather solid, rugosely striated above, very closely but slightly undulately lineate between the striæ; light brown, with a deeper brown band below the periphery, base brownish white. Diam. 42, alt. 18 mill.

*Borneo.*

N. Donovani, Pfr. Pl. 13, fig. 76.

Perforate, thin, diaphanous, striate, very minutely decussated above by oblique lines; yellowish brown, the peripheral angle whitish with a narrow chestnut band below it, base brownish white; whorls $5\frac{1}{2}$, the last angulated on the periphery; interior opaline, showing the bands. Diam. 47, alt. 21 mill.

*Borneo.*

Very closely allied to the preceding species.

N. isabellina, Pfr. Pl. 13, fig. 77.

Perforate, thin, very minutely granulately rugulose, pellucid; light yellowish or flesh-color; whorls 5, the last acutely carinated. Diam. 33, alt. 14 mill.

*Ceylon.*

N. acuducta, Benson. Pl. 13, fig. 81.

Perforate, thin, costulately striate, granulately decussated by very close impressed lines, smooth below, with impressed spiral

striæ; light yellowish brown; whorls 5, the last narrowly carinate on the periphery. Diam. 22, alt. 11 mill.

*Nilgherry Mts., Central India.*

I suspect that this will prove identical with the last species; if so, it has priority in date of description.

N. TRAVANCORICA, Benson. Pl. 13, fig. 78.

Narrowly perforate, thin, very sharply decussated above by close granular spiral striæ and very close oblique growth-lines, smoother and polished below, with obsolete spiral striæ towards the umbilicus; very light yellowish brown; whorls $5\frac{1}{2}$, suture narrowly margined, last whorl with a strong, narrow, whitish peripheral carina, base convex. Diam. 29, alt. 15 mill.

*Travancore, India.*

N. CENTRALIS, Mousson. Pl. 13, figs. 79, 80.

Narrowly perforate, minutely striate, very minutely granulose; cinnamon-color, lighter on the carina; whorls $6\frac{1}{2}$, the last with sharp, peripheral angulation. Diam. 22, alt. 12 mill.

*Java.*

N. CERARIA, Benson. Pl. 13, fig. 82.

Covered perforate, shining, radiately rugosely striate, decussated by rather remote spiral striæ; whorls 4, the last carinate on the periphery; light yellowish brown, becoming orange-brown on the spire; extremities of the lip united by a thin parietal callus. Diam. 20, alt. 10 mill.

*Ceylon.*

N. RIEDELII, Martens. Pl. 13, figs. 83–86.

Scarcely perforated, thin, striulate, with close, slight spiral lines above, shining below; whorls 4, slightly margined at the suture; yellowish, lighter on the peripheral angle.

Diam. 19, alt. 12 mill.

*Celebes.*

This is *N. securiformis*, Mouss. not Deshayes.

N. NOVELLA, Pfr. Pl. 14, fig. 88.

Perforate, rather thin, diaphanous, lightly rugosely striate; orange-brown, lighter on the carina; whorls 5, suture submargined. Diam. 21·5, alt. 12·5 mill.

*Ceylon.*

Too close to *N. ceraria*, Benson, described above, as well as to the following species.

N. INDICA, Pfr. Pl. 23, fig. 46.

Perforate, rather solid, striæ rib-like above, and closely granulately decussated with impressed lines, smooth below, except a few spiral lines near the keel; yellowish brown; whorls 5–6, the last carinate on the periphery. Diam. 23, alt. 14 mill.

*Nilgherry Mts., Central India; Australia* (introduced).

N. VARIOLOSA, Pfr. Pl. 14, fig. 87.

Perforate, rather solid, opaque, very closely plicate above, decussated by regular concentric lines; orange-brown above, yellowish brown below, subfasciately ornamented with white, obliquely subquadrangular pustules; whorls $3\frac{1}{2}$, the last sharply carinated on the periphery. Diam. 23, alt. 13 mill.

*Hab. unknown.*

This shell is certainly not adult.

N. CYMATIUM, Benson. Pl. 14, fig. 89.

Umbilicated, solid, thinly striated and minutely obliquely rugulose; reddish brown, lighter on the base; whorls $6\frac{1}{2}$, suture chestnut-margined, the last whorl with a compressed peripheral carina, lighter colored, with a chestnut band below it; base spirally striate, umbilicus large. Diam. 45, alt. 21 mill.

*Malacca, Penang.*

N. CHEVALIERI, Souleyet. Pl. 14, fig. 90.

Umbilicated, rugulose above; olivaceous brown, base lighter; whorls 6, the last narrowly carinated on the periphery and chestnut-banded; aperture banded within.

Diam. 37, alt. 20 mill.

*Malacca.*

Less conical, whorls more rapidly enlarging, umbilicus smaller than in the preceding species.

N. DENSA, Ads. and Reeve. Pl. 14, figs. 91–93.

Narrowly umbilicated, moderately solid, striate, minutely granulose above, smoother below; light yellowish or orange-brown; whorls $5\frac{1}{2}$, last whorl acutely angulated on the periphery, with a narrow chestnut band below the angle.

Diam. 40, alt. 20 mill.

*Philippines.*

N. SCHUMACHERIANA, Pfr. Pl. 14, fig. 94.

Chestnut-colored, slightly larger with more compressed carina than the last species, chestnut-banded below the carina.

Diam. 44, alt. 22 mill.

*Borneo.*

This is *N. densa*, var. β of Pfeiffer, but subsequently separated by him as above. Dr. von Martens unites it with *densa* as a variety, adding as different varieties *N. atrofusca*, Albers (= typical *Schumacheriana*), var. *ignobilis* (= typical *densa*), *N. Herklotsiana*, Dohrn, p. 37; *N. Moussoniana* (= *N. corrosa*, Mousson), var. *Lowiana*.

N. SEMIDECUSSATA, Pfr. Pl. 17, fig. 52.

Narrowly perforate, rather thin, striate, very distinctly decussated above by fine spiral lines, smooth and slightly shining below; fulvous-brown; whorls 7, the last obtusely plicately carinate at the periphery. Diam. 33, alt. 18 mill.

*Ceylon.*

N. WEINKAUFFIANA, Crosse. Pl. 17, fig. 48.

Narrowly perforate, rather solid, arcuately finely striate, with obsolete, impressed spiral lines; yellowish brown, becoming nearly white around the umbilicus; whorls 6, the last with acutely angulated periphery; lip slightly thickened, white.

Diam. 29, alt. 13 mill.

*Cochin China.*

N. CROSSEI, Pfr. Pl. 17, fig. 47.

Very narrowly perforate, moderately solid, closely, finely arcuately striate above, obsoletely decussated by spiral lines, smooth and polished below; whorls $6\frac{1}{2}$, yellowish white, the last slightly descending at the aperture, obtusely angulated on the periphery, becoming nearly white around the umbilicus; lip slightly thickened within, white. Diam. 28·5, alt. 17 mill.

*Siam.*

Varieties occur in Cochin China of darker color, fulvous chestnut. Less depressed and more obtusely angulated than the preceding species.

N. SEMIGLOBOSA, Pfr. Pl. 14, fig. 95.

Subperforate, rather thin, very minutely decussately granulate above, smooth and shining below; yellowish brown, with a chest-

nut band below the carina; whorls 6, the last with strongly angulated periphery. Diam. 44, alt. 26 mill.

*Ins. Leyte and Samar, Philippines.*

A variety has the last whorl more inflated, and is darker colored. Closely allied to the next species, but the shell is thinner, spire more convex, carina obtuse, the umbilicus not closed, etc.

N. PANAYENSIS, Brod. Pl. 14, figs. 96, 97.

Imperforate, moderately thick, body-whorl concave above the carina, very minutely granularly decussated by close impressed spiral lines and close growth-lines; yellowish or orange-brown or light-chestnut above, darker and olivaceous below, smooth and shining; whorls 6, peripheral carina acute.

Diam. 44, alt. 21 mill.

*Ins. Panay, Philippines.*

The darker colored variety, with somewhat higher spire, occurs on the Island of Luzon.

N. BLAINVILLEANA, Lea. Pl. 15, figs. 1, 2.

Narrowly perforate, sometimes covered in the adult, moderately thin, very finely decussately granular above, smooth and polished below; olivaceous brown, dilutely darker banded below the periphery; whorls 6, the last strongly angulated, base usually darker colored. Diam. 36, alt. 20 mill.

*Ins. Labuan, Philippines.*

Generally known as *N. semigranosa*, Sowerby, but Dr. Lea's name has clear priority, and I am glad to have the opportunity of restoring it. Dr. Lea was one of the pioneers in opening up to science a knowledge of the many beautiful terrestrial and fluviatile mollusks of the East Indies and Philippines, and he did his work well, both by description and illustration, yet his labors have been slightingly treated by European naturalists, and often ignored.

*N. Moussoni*, Semper, is a synonym.

N. COMPLUVIATA, Cox. Pl. 14, fig. 100.

Umbilicus narrow, shell thin, smoothish; chestnut-color, lighter on the carina and around the umbilicus; whorls 6, the last with

acute carina, slightly sulcate above it, the sulcus continuing on the spire-whorls. Diam. 28, alt. 18 mill.

*Solomon Islands.*

Placed by Pfeiffer in this group, but scarcely belonging to it.

N. TINOSTOMA, Blanford. Pl. 14, fig. 99.

Narrowly umbilicated, closely decussated, with fine spiral striæ, and growth-lines, smoother beneath; yellowish brown above, paler below, with a narrow pale line just above and a dark line just below the periphery; whorls 5, the last scarcely angular on the periphery; aperture peculiarly compressed above and below, transverse, peristome slightly inflexed above.

Diam. 50, alt. 21 mill.

*Near Travancore, India;* alt. 5000 ft.

N. ENISA, Blanford. Pl. 14, fig. 98.

Umbilicated, subgranularly decussated above, formed by growth striæ and fine spiral lines, the latter disappearing near the umbilicus on the smoother base; yellowish chestnut, paler and dull yellow below around the umbilicus, with a faint pale peripheral band; whorls $4\frac{1}{2}$, the last slightly angulate on the periphery, depressed above at the aperture. Diam. 43, alt. 20 mill.

*Travancore, India.*

N. GORDONIÆ, Benson. Pl. 15, figs. 3, 4.

Perforate, thin, obliquely plicatulate and very minutely striate above, smoother below, somewhat shining, radiately striate and distantly decussate; corneous white; whorls 7, widely margined at the suture, sharply compressed-carinate at the periphery; lip a little thickened within, white. Diam. 33, alt. 11 mill.

*Moulmein, Burmah.*

N. CLEAMESI, E. A. Smith. Pl. 28, figs. 4, 5.

Narrowly perforate, thin, semitransparent, the curved growth-lines are crossed and granulated above by fine concentric striæ, below more finely concentrically striated, more glossy and not granulated; vinous horn-color; whorls 6, the last carinate, the carina less marked near the aperture. Diam. 26, alt. 17 mill.

*Madagascar.*

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*Unfigured and Doubtful Species.*

N. DANÆ and N. DURA, Pfr. — *Lao Mts., Cambodia.*

N. ARGUTA, Pfr. — *Tenga Hills, Java.*

N. FORDEI, Brazier. *Mt. Wellington, Tasmania.*
N. INCLINATA, Pfr. *Louisiade Is.*
N. EGBERTIÆ, Martens. *Taburi, S. East New Guinea.*
N. MENADENSIS, Mousson. *Celebes.*
N. DECLIVIS, Pfr. (*N. Tritoniensis*, Le Guillou). *Triton Bay, N. Guinea.*

Section EUPLECTA, Semper, 1870.

N. BOHOLENSIS, Pfr. Pl. 23, figs. 47, 48.

Imperforate, thin; corneous white, closely regularly striate above, with two acute elevated spiral lines at the suture, striulate below; whorls 7, the last with acutely carinated periphery. Diam. 10–14, alt. 4–6 mill.

*Ins. Bohol, Philippines.*

N. ARMIDA, Pfr. Pl. 23, fig. 49.

Subperforate, rather thin, minutely striatulate, diaphanous, slightly shining, light brown; whorls 6, suture with white margin, last whorl with a short whitish peripheral carina. Diam. 16, alt. 8 mill.

*Ins. Luzon, Philippines.*

N. BIANGULATA, Pfr. Pl. 23, fig. 50.

Subperforate, thin, lightly striate and a little shining; yellowish white; whorls 7, slowly enlarging, spire gradate, last whorl bicarinate, the upper carina showing on all the whorls, the lower one thread-like on the periphery. Diam. 15, alt. 9 mill.

*Ins. Luzon, Philippines.*

N. FILOCINCTA, Pfr. Pl. 23, fig. 51.

Narrowly perforate, thin, pellucid, striulate, shining; corneous white; whorls $5\frac{1}{2}$, with a thread-like peripheral carina, margining the suture above. Diam. 11, alt. 5·5 mill.

*Ins. Mindanao, Philippines.*

This is the type of *Inozonites*, Pfeffer, which appears to agree with *Euplecta*, except that the mucous pore is said to be without horn.

N. BICARINATA, Semper. Pl. 23, figs. 52, 53.

Perforate, or covered, thin, striate, above the suture with two approximating carinæ; whorls $6–6\frac{1}{2}$, the lower carina becoming obsolete on the last. Diam. 12·5, alt. 5–7 mill.

*Ins. Luzon, Philippines.*

N. ORTHOSTOMA, Pfr. Pl. 23, figs. 54–56.

Umbilicated, closely arcuately striate above, thin, pellucid, light corneous; whorls 6, narrow, base smoothish.

Diam. 10, alt. 5 mill.

*Ins. Panay, Philippines.*

A doubtful number of the group.

N. ROTUNDATA, Semper. (Unfigured.) *Ins. Luzon, Philippines.*

Section ROTULARIA, Mörch, 1852.

N. MASSONI, Behn. Pl. 23, figs. 57, 58.

Perforate, moderately solid, lightly rugulosely striate, and slightly decussated, somewhat shining; olivaceous brown; whorls 5, suture margined, the two last whorls impressed above the carina, the last not descending, base shining.

Diam. 18, alt. 8 mill.

*Nicobar Islands.*

N. REINHARDI, Mörch.

Differs from the above in being smaller (diam. 6 mill.), umbilicus wider, spire more elevated, carina narrower, and want of spiral lines. Nevill makes this a variety of *N. Massoni;* it has not been figured, but unless a young shell, it would appear to have sufficient distinctive characters.

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N. FRAUENFELDI, Zelebor. (Unfigured.) *Nicobar Islands.*

Section TROCHONANINA, Mousson, 1869.

N. SCHMELTZIANA, Mousson. Pl. 23, fig. 59.

Imperforate, thin, pellucid, shining above, polished below; yellowish horn-color; whorls $5\frac{1}{2}$, plane above, convex below, the last acutely angulated on the periphery. Diam. 7, alt. 4 mill.

*Ins. Upolu.*

Var. USURPATA, Mousson.

Elevately conical, darker, carina less acute, columellar margin less callous and nodulous.

*Ins. Savai.*

N. EXPOSITA, Mousson. Pl. 23, fig. 60.

Imperforate, scarcely shining above, polished below, striulate, chestnut-colored, radiately subfasciate; whorls $4\frac{1}{2}$–5, flattened above, a little excavated at the peripheral carina, base radiately

and sinuously indistinctly fasciate; columellar lip slightly sinuous, callously reflexed and adnate at the insertion.

Diam. 7, alt. 4–4·5 mill.

*Sunday Island, Kermandec Archipelago.*

N. TAIS, Hombr. et Jacq. Pl. 23, fig. 61.

Imperforate, thin, distinctly striate and very obsoletely decussated by spiral lines above, smoother and more shining below; yellowish corneous or brownish, lighter colored below; whorls 6, the last acutely angulated on the periphery.

Diam. 13, alt. 7 mill.

*Marquesas Is.*

N. TROPIDOPHORA, Ad. and Rve. Pl. 23, fig. 62.

Imperforate, distinctly striulate with obsolete decussating spiral lines above, below smoother and more shining; dark brown, lighter below; whorls 5½–6, the last bearing an acute peripheral carina, slightly concave above and below it.

Diam. 11·5, alt. 7 mill.

*Borneo.*

N. INSCULPTA, Pfr. Pl. 23, figs. 63–65.

Imperforate, moderately solid, above closely costulate, with impressed spiral lines parallel with the carina, base smooth, with impressed lines next the carina; whorls 5, the last with a sharp peripheral angle; columella with a short white tooth.

Diam. 8, alt. 4 mill.

*Ins. Norfolk? Siam.*

*N. basiodon*, Morelet, is a synonym.

N. CONICOIDES, Metcalfe. Pl. 23, figs. 66–68.

Imperforate, rather thin, striulate, with obsolete concentric raised striæ at the carina, somewhat shining, polished below; yellowish brown; whorls 7, compressed at the peripheral carina, which is acute, with a brown line below it, sometimes obsolete.

Diam. 18, alt. 8 mill.

*Borneo.*

Var. LABUANENSIS, Pfr. Figs. 67, 68.

Spiral raised striæ more distinct, shell more depressed, with more acute carina, suture margined. Diam. 16·5, alt. 6 mill.

*Ins. Labuan.*

*N. vitrea*, Bonnet, is a synonym.

N. SYLVANA, Dohrn and Semper. Pl. 23, figs. 69, 70.

Imperforate, rather thin, obliquely striate and slightly, very minutely spirally lirate above, polished below; horn-colored, with a brown thread at the suture; whorls 7–8, apex pellucid, last whorl acutely carinate, the carina sometimes appearing on the spire, the upper whorls being slightly exserted.

Diam. 18, alt. 7 mill.

*Ins. Mindanao, Philippines.*

N. CALCULOSA, Gould. Pl. 23, fig. 71.

Hyaline, fragile, shining, smooth, imperforate; light yellowish brown; whorls 4, the last obtusely angulated and narrowly carinated on the periphery. Diam. 2·5–4·5 mill., alt. 2–4 mill.

*Viti and Marquesas Is.*

N. OBCONICA, Pease. Pl. 23, figs. 72–74.

Narrowly perforate, thin, subpellucid, closely obliquely striate; corneous; whorls [illegible]; lightly margined, the last acutely carinated on the periphery. Diam. 7, alt. 4·5 inches.

*Raiatea, Society Islands.*

N. SUBRUGOSA. Garrett. Pl. 23, fig. 75.

Imperforate, thin, subpellucid, fulvous, upper surface closely plicately striate, base smooth, glossy, umbilical region indented; whorls 4–4½, slowly increasing, the last with a thread-like keel.

Diam. 2·5, alt. 2 mill.

*Tahiti and Moorea, Society Islands.*

N. TAHITENSIS, Garrett. Pl. 23, fig. 76.

Subperforate, thin, subpellucid, with fine sharp oblique elevated striæ above, base smooth, glossy; whorls 4½, spire dome-shaped, suture margined above by the peripheral keel, which is prominent and thread-like on the last whorl. Diam. 2·5, alt. 2 mill.

*Tahiti*, alt. 2000 ft.

N. CONULA, Pease. Pl. 23, figs. 77, 78.

Imperforate, thin, upper whorls with subdistant revolving striæ, obsolete in the last, base more slightly radiately striate; whorls 5, the last with peripheral carina; columella thickened, twisted, with a basal dentiform process. Diam. 7, alt. 5 mill.

*Tahiti, Rarotonga.*

This is *N. Tongana*, Schmeltz, not Quoy.

N. LYCHNIA, Benson. Pl. 24, fig. 79.

Imperforate, thin, translucent, polished, lightly striulate; brownish or greenish brown; whorls 6½, narrow, suture margined, last whorl acutely compressly carinate at the periphery. Diam. 12, alt. 5·5 mill.

*Malacca, Nilgherry Mts. India.*

Section MARTENSIA, Semper, 1870.

N. MOZAMBICENSIS, Pfr. Pl. 24, fig. 80.

Perforate, rather thin, with close thread-like striæ, shining; light reddish brown, base often yellowish gray, somewhat marbled; whorls 5–6, suture submarginate, the last with a white peripheral angle. Diam. 12–17, alt. 6·5–8 mill.

*Mozambique.*

Var. ALBOPICTA, Martens.

Finely undulately obscurely radiated with white.

Bourguignat (Helixarionidæ, p. 7) thinks that the larger form as described by von Martens does not belong to this species.

N. PYRAMIDEA, Martens. Pl. 24, figs. 82–84, 81.

Perforate, irregularly striulate, light brownish horn-color above, periphery white, diaphanous whitish below; whorls 6, suture slightly margined, periphery scarcely angulated. Diam. 18, alt. 13 mill.

*E. Africa.*

Var. LEUCOGRAPTA, Martens. Fig. 81.

Radially interruptedly striated and spirally banded with white.

N. PLICATULA, Martens. Pl. 24, figs. 85, 86.

Perforate, rugosely striate above, below lightly striulate; variegated with white and corneous brown, base whitish; whorls 5, the last with obtusely angulated periphery. Diam. 11, alt. 7 mill.

*Zanzibar.*

N. JENYNSI, Pfeiffer. Pl. 24, figs. 87, 88.

Subperforate, striulate, thin, shining; milk white, with a chestnut line above the carina; whorls 5½, the last with obtusely angulated periphery; lip nearly closing the perforation. Diam. 12, alt. 7·5 mill.

*Zanzibar*, and between *L. Nyassa* and the *East Coast*. It is said also to inhabit *Java* and *New Hebrides*.

N. DUBIA, Taylor. (Unfigured.) *Zanzibar.*

N. PELIOSTOMA, Martens. (Unfigured.) *Barava, N. of Zanzibar.*

N. ALFIERIANA, Soleillet. (Unfigured.) *E. Africa.*

N. FORMOSA, N. MEGASTOMA, N. INSIGNIS, N. UNIZONATA, N. ANCEYI, all of Bourguignat. (Unfigured.) *E. Africa.*

Section ZINGIS, Martens, 1878.

N. RADIOLATA, Martens. Pl. 24, figs. 89–91.

Rimate, thin, rather distantly radiately plicate-striæ; brownish horn-color, with close, interrupted, whitish rays, and a chestnut band on the periphery; whorls 5, periphery rounded.

Diam. 13, alt. 9·5 mill.

*Zanzibar.*

Section TROCHOZONITES, Pfeffer, 1883.

N. PERCARINATA, Martens. Pl. 24, figs. 92–94.

Perforate, thin, decussated above by oblique striæ and very slight spiral lines; opaque, reddish brown; whorls 7, acutely carinated on the periphery, suture channeled and with an impressed line above the carina; base yellowish brown, shining.

Diam. 11·5–15 mill., alt. 8–10 mill.

*Bonjongo, W. Africa.*

N. IBUENSIS, Martens. Pl. 24, figs. 95, 96.

Subperforate, thin, very finely obliquely striated, pellucid; brownish horn-color; whorls 7, the last sharply thread-keeled, base smoothish. Diam. 13 mill., alt. 10 mill.

*Ibu and Bonjongo, W. Africa.*

N. TUMIDULA, Martens. Pl. 24, fig. 97.

Perforated, rather thin, obliquely striate, and very lightly decussated, shining; reddish brown, light banded; whorls 7, the last minutely carinate on the periphery. Diam. 14, alt. 6·5 mill.

*Bonjongo, W. Africa.*

N. CALABARICA, Pfr. Pl. 24, figs. 99–1.

Perforate, thin, smoothish, diaphanous, above with 6 sharp, thread-like, spiral liræ; corneous, whitish on the base; whorls 6, the last acutely carinate. Diam. 9·5, alt. 4·5 mill.

*Old Calabar, W. Africa.*

N. FOLINI, Morelet. Pl. 24, fig. 98.

Perforate, thin, distantly costate above, subdiaphanous,

slightly shining, smooth and shining below; whorls 7, the last acutely carinated. Diam. 9·3, alt. 7 mill.

*Prince's Isl., Guinea.*

N. TALCOSA, Gould. Pl. 24, fig. 2.

Scarcely perforate, rather thin, striate, with four subacute spiral liræ; light corneous; whorls $6\frac{1}{2}$, suture subchanneled, carinate-margined, the last whorl with acute peripheral carina, base convex. Diam. 7, alt. 6·75 mill.

*Cape Palmas, Liberia.*

N. ADANSONIÆ, Morelet. Pl. 24, fig. 3.

Perforate, thin, corneous brown, obliquely closely costulate above, smooth below; whorls $6\frac{1}{2}$, the last with sharp peripheral angle. Diam. 6, alt. 6 mill.

*Gabon Country, W. Africa.*

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N. PALMARUM, Morelet. (Unfigured.) *Cape Palmas, W. Africa.*
N. BIFILARIS, Dohrn. (Unfigured.) *Liberia.*

Section SITALA, H. Adams, 1856.

The grouping of the species is as far as possible that given by Godwin-Austen in the second part of his "Land and Freshwater Shells of India."

A. *Shell small, pyramidal, closely umbilicated, keeled, more or less flat below, with four or more spiral ribs on the whorls; columellar margin simple, more or less oblique; spire with flat sides; apex acuminate.*

N. INFULA, Benson. Pl. 24, figs. 4, 5.

Yellowish corneous, thin, 5–7 striate with distant lines above, smooth below and more shining; whorls 6.

Diam. 8, alt. 7 mill.

*Lower Bengal.*

It is *Helix turbiniformis*, Benson, not Pfeiffer.

N. ATTEGIA, Benson. Pl. 24, figs. 6, 7.

Thin, striulate, with 6 remote, scarcely elevated spiral liræ, and very minute intermediate striæ; corneous, pellucid; whorls 7, the last thread-carinated.

Diam. and alt. 8 mill. to Diam. 10, alt. 7·5 mill.

*Ava, Pegu, Mulmain.*

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N. CULMEN, Blanford. Pl. 24, fig. 8.

Very minutely perforated, very thin, horny, translucent above, with about nine fine raised spiral lines, minutely decussately striated below; whorls 6, sharply keeled at the periphery of the last whorl. Diam. 5·75, alt. 5·5 mill.

*Pegu.*

"Easily distinguished from *N. confinis* and *N. Attegia* by its smaller size and higher spire, from *N. arx* by the sides of the spire being straight and not concave, and from the Bengal *N. infula*, Bens., by its sculpture, and its sharper keel."

N. CONFINIS, Blanford. Pl. 24, fig. 9.

Minutely perforated, very thin, whitish horny; whorls 7, with four or five spiral ribs and fine oblique lines of growth, the last sharply keeled, and very finely radiately striated below.

Diam. 10·5, alt. 7 mill.

*Pegu.*

N. HAROLDI, Godwin-Austen. Pl. 24, fig. 10.

Imperforate, pale umber-brown, with ten spiral thread-like white ribs above, and distant concentric ribs on the base; whorls 7. Diam. 3·3, alt. 2·7 mill.

*Andaman Is.*

N. GROMATICA, Godwin-Austen. Pl. 25, figs. 11, 12.

Scarcely perforate, pale ochraceous umber-brown, whorls 7, the last sharply keeled, base flattened, sculptured above with 10 distant spiral thread-like ribs, and four approximate ones near the suture. Diam. 3·4, alt. 2·7 mill.

*Munipur Hills.*

A variety (fig. 12) differs only in the spiral ribs being 12 to 14 in number.

N. PHULONGENSIS, Godwin-Austen. Pl. 25, fig. 13.

Scarcely perforate, pale sienna-brown, with 6 or 7 spiral ribs above, and five close concentric ribs on the base; whorls $5\frac{1}{2}$, suture well impressed. Diam. 2·5, alt. axis, 2·3 mill.

*North Cachar Hills.*

N. LIRICINCTA, Stoliczka. Pl. 25, fig. 14.

Narrowly umbilicated, thin, with four spiral ribs of which the median ones are stronger, and three or four thin subperipheral

liræ on the base, which is elsewhere smooth; chestnut color with lighter apex, or entirely light corneous; whorls 7.

Diam. 6·4, alt. 5·8 mill.

*Tenasserim.*

*a. Shell conoid, apex blunt.*

N. LIMATA, Godwin-Austen. Pl. 25, fig. 15.

Scarcely perforate, with six thread-like spiral ribs above on each whorl, close spiral riblets on the base; horny brown; whorls 5, with convex sides, apex blunt.

Diam. 2·6, alt. axis 1·6 mill.

*Pegu.*

*aa. Shell conoid, depressed, sides convex.*

N. CARINIFERA, Stoliczka. Pl. 25, fig. 16.

Very narrowly perforate, corneous; whorls 5, the last one tricarinate on the periphery, base smooth, upper whorls with two thread-like carinæ above the suture. Diam. 2·2, alt. 2 mill.

*Penang.*

N. PALMARIA, Benson. Pl. 25, fig. 17.

Perforate, spirally 7-lirate, decussated by very close thread-like oblique striæ; corneous white; whorls 6½, suture well impressed. Diam. 8·5, alt. 6 mill.

*Mysore.*

N. BALLIANA, Nevill. Pl. 25, fig. 19.

Umbilicated, with irregular fine longitudinal costulæ, and four or five strongly marked revolving ribs above; umber-brown, with a strong epidermis; whorls 5, with well-impressed suture.

Diam. 3·6, alt. axis 2 mill.

*Hills near Ganjam, Madras.*

*aaa. Spire high, with concave sides.*

N. ARX, Benson. Pl. 25, fig. 18.

Narrowly perforated, thin, olivaceous corneous, very minutely closely obliquely striate above, with three or four spiral liræ, smoother below; whorls 7½, suture margined, peripheral carina on last whorl acute. Diam. 10, axis 7·5 mill.

*Tenasserim.*

B. *Shell globose, whorls tumid, with many fine close-set spiral ribs.*

N. RIMICOLA, Benson. Pl. 25, figs. 20, 21.

Scarcely perforate, thin, fragile, diaphanous, light corneous, obliquely striulate, with regular fine revolving striæ; whorls $5\frac{1}{2}$–6, suture lightly impressed. Diam. 4·5, axis 4 mill.

*N. W. Himalayas, Darjiling, Khasi Hills.*

Sometimes the periphery is slightly obtusely angulated.

N. CIRCUMFILARIS, Morelet. Pl. 25, fig. 22.

Rimately subperforate, thin, light fulvous, lighter below, smooth, very lightly thinly striate; whorls 6, the last obtusely angulated on the periphery. Diam. 3·3, alt. 3·3 mill.

*Anjouin, Comoro Is.*

*b. Sides convex; spiral ribbing less regular.*

N. INJUSSA, Blanford. Pl. 25, fig. 23.

Scarcely perforated, rather thin, light corneous, obliquely striate above, radiately striate below; whorls $5\frac{1}{2}$, the last evanescently angulated on the periphery. Diam. 3·25, alt. 3·25 mill.

*Nilghiri Hills.*

*bb. Globosely turbinate, very small.*

N. FEBRILIS, Blanford. Pl. 25, fig. 24.

Very narrowly perforate, spirally lirate; whorls $4\frac{1}{2}$, smooth below. Diam. 1·5, alt. 1·25 mill.

*Kalryenmully Hills, Central India.*

*C. Shell depressly conoid, whorls turreted, with one or two spiral ribs; apex flat.*

N. TRICARINATA, Blanford. Pl. 25, fig. 25.

Openly perforate, thin, light corneous, obliquely striulate, obsoletely decussated below; whorls 4, the last with three strong, thread-like spiral carinæ, the others with two carinæ.

Diam. 1·66, alt. 1 mill.

*Nilghiri Hills.*

N. KUANGSIENSIS, Tryon. Pl. 25, figs. 26, 27.

Perforate, thin, subpellucid, scarcely shining; yellowish white;

encircled by two carinæ, one peripheral, the other sutural; whorls 8, the last striulate, shining below.

Diam. 6, alt. axis 5 mill.

*Province Kuangsi, China.*

Is *N. bilirata*, Gredler, not Blanford.

C. *Openly umbilicated.*

N. SUBBILIRATA, Godwin-Austen. Pl. 25, fig. 28.

Rather openly perforate, covered with a strong epidermis; very finely spirally ribbed, crossed by irregular growth-lines; dull ochraceous brown; whorls 5, the last encircled with two ribs, the upper ones with one. Diam. 2·7, alt. axis 1·3 mill.

*Andaman Islands.*

*cc. Apex obtuse.*

N. BILIRATA, Blanford.

Perforate, rather solid, corneous, transversely striated; whorls 7, the upper ones with a single carina, the last acutely bicarinate at the periphery. Diam. 6, axis 4·5 mill.

*Shevroy and Nolamully Hills, India.*

The figure of this species is not accessible to me.

*ccc. Spiral ribs indistinct; umbilicated.*

N. TERTIANA, Blanford. Pl. 25, fig. 29.

Perforate, thin, pallid corneous, striulate; whorls 6, not carinate. Diam. 2·25, alt. 1·75 mill.

*Nilghiri Hills, India*

N. SRIMANI, Godwin-Austen. Pl. 29, fig. 30.

Closely umbilicated, with four or five indistinct spiral ribs and rather coarse oblique lines of growth; ochraceous brown; whorls 5. Diam. 3·9, alt. axis, 2·2 mill.

*Munipur.*

Differs from *N. tertiana* in its spire and narrower umbilicus.

N. UVIDA, Godwin-Austen. Pl. 25, fig. 31.

Narrowly umbilicated; with wavy longitudinal ribs, crossed by fine indistinct spiral lines, more distinct on the apex, base with well-marked concentric ribs; pale sienna-brown; whorls 5. Diam. 2·8, alt. axis 1·7 mill.

*Teria Ghat*, south base of *Khasi Hills.*

N. PLACITA, Godwin-Austen. Pl. 25, fig. 32.

Perforation concealed, distantly spirally ribbed, on the base far apart and well raised; pale horn-color; whorls $4\frac{1}{2}$, periphery rounded. Diam. 2·8, alt. axis 2 mill.

*Khasi Hills.*

N. MONOMENA, Benson. Pl. 25, fig. 33.

Very narrowly perforate, radiately striate, whitish corneous, smooth, translucent, not shining; whorls $6\frac{1}{2}$, with a single thread-like carina appearing on all the whorls, on the periphery of the last. Diam. 5, axis 4 mill.

*Ceylon.*

D. *Shell conoid, rounded below; aperture very oblique; spiral ribbing both above and below; columellar margin thickened, perpendicular and twisted.*

N. GRATULATOR, Blanford. Pl. 25, fig. 34.

Perforated, thin, whitish-horny; spirally lirate and marked by growth-lines above and below, not excavated around the perforation; whorls 5, the last one keeled at the periphery.

Diam. 5, axis 4 mill.

*Pegu.*

E. *Apex acuminate, spire more or less concave, the longitudinal ribbing more regular and defined, a spiral sulcation breaking up the former into minute raised dots or dashes.*

N. APICATA, Blanford. Pl. 26, fig. 35.

Subperforate, or nearly covered, thin, corneous, sculpture obsolete; whorls 6, the last acutely carinate at the periphery.

Diam. 14, axis 10 mill.

*Nilghiri Hills, India.*

N. CACUMENIFERA, Benson. Pl. 26, fig. 36.

Covered perforate, thin, corneous, with seven moniliform spiral lines, and minuter intermediate ones, radiately striate and polished below, whorls 8, apex papillary, spire concave.

Diam. 19, axis 10 mill.

*Nilghiri Hills, India.*

N. CONCAVOSPIRA, Pfr. Pl. 26, fig. 37.

Subperforate, thin, scarcely striulate, brownish white under a fugacious epidermis; whorls 7, suture submarginate, last whorl with acute peripheral carination. Diam. 13·5, alt. 11 mill.

*Ceylon.*

N. CONULUS, Blanford. Pl. 26, fig. 38.

Subperforate, corneous white, thin, translucent, with oblique sinuous somewhat thread-like costulæ, and below the middle light spiral lines; whorls 6, those of the spire with a single carination, the last with a strong peripheral carina and a less prominent one below it; base decussated by radiating striæ and impressed concentric lines. Diam. 1·75, alt. 2 mill.

*Arakan.*

This is perhaps a member of the section Kaliella.

N. EMILIANA, Pfr. Pl. 26, fig. 39.

Perforate, moderately solid, closely costulate above, somewhat regularly granulate by impressed spiral lines, opaque, yellowish brown; whorls 6, the last compressedly carinated, base radiately striulate, somewhat shining. Diam. 16·5, alt. 8 mill.

*Ceylon.*

N. HYPHASMA, Pfr. Pl. 26, fig. 40.

Scarcely perforate, thin, closely radiately striated, with more remote spiral sulci, pellucid, corneous white; whorls 7, suture margined, last whorl compressedly carinate, base smoothish, shining. Diam. 15, alt. 10·5 mill.

*Ceylon.*

N. SUBDECUSSATA, Pfr. Pl. 26, fig. 41.

Perforate, thin, irregularly plicately striate, obsoletely decussated by spiral striæ above, pellucid, greenish hyaline; whorls 6, apex somewhat obtuse, periphery subcarinate, base shining. Diam. 14, alt. 9 mill.

*Near Bombay, India.*

N. FALCATA, Blanford. Pl. 26, fig. 42.

Perforate, corneous, obliquely arcuately costulate-plicate, the plicæ evanescent below the periphery, smooth, polished, radiately striulate below; whorls 6, periphery subangulated, rounded in front. Diam. 13, axis 7 mill.

*Habiang, Garo Mts., India.*

N. CINGALENSIS, Benson. Pl. 26, fig. 43.

Perforate, closely arcuately costulate above, granulately decussated by close spiral striæ, yellowish corneous, translucent, below more shining, radiately striulate, scarcely marked by obso-

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lete spiral striæ; whorls 6, suture margined, the last whorl compressed, carinate at the periphery, carina margined.

Diam. 17, axis 9 mill.

*Ceylon.*

It is *N. Emiliana*, Reeve, not Pfr.

N. Baconi, Benson. Pl. 26, fig. 44.

Narrowly perforate, very thin, pellucid, light corneous, elegantly corrugately decussately striate above, radiately striate and polished below; whorls 5, those of the spire with a narrow superior chestnut line; last whorl with angulated periphery.

Diam. 14, alt. 8·5 mill.

*Moradabad, N. India.*

The type is unique, and according to Hanley and Theobald not adult.

N. Layardi, Pfr. Pl. 26, fig. 45.

Perforate, rather thin, rugulosely striate, pellucid, light corneous; whorls 5½, the last with angulated periphery.

Diam. 13, alt. 9 mill.

*Ceylon.*

N. phyllophila, Benson. Pl. 26, fig. 46.

Scarcely perforate, thin, pellucid, obliquely striulate above, with very minute and very close undulating striæ, somewhat shining below, light corneous; whorls 6½, the last with peripheral angulation. Diam. 5, axis 5 mill.

*Ceylon.*

N. verrucula, Pfr. Pl. 26, fig. 47.

Scarcely umbilicated, thin, translucent, olive brown, very finely costulate above, decussated by spiral grooves, smoothish below; whorls 4, the last sharply keeled on the periphery.

Diam. 13, alt. 10·5 mill.

*Ceylon.*

***

N. leucophlœa, Martens. Pl. 26, fig. 48.

Perforate, lightly striulate, white, scarcely shining; whorls 4?, the last with angulated periphery. Diam. 6·5, alt. 6 mill.

*Northern Celebes.*

The unique specimen is apparently not adult.

N. SUBNANA, Nevill. Pl. 26. fig. 49.

Perforation covered, longitudinally finely costulate, decussated by fine spiral lines; pale sienna brown; whorls 4, the last with angulated periphery. Diam. 2·8, alt. axis 1·5 mill.

*Jessore.*

N. CRENICINCTA, Godwin-Austen. Pl. 26, fig. 50.

Perforate, covered with a thick pale olive-brown epidermis, with two parallel rows of fine hairs, longitudinally irregularly costulate, with regular, rather distant spiral raised ridges, very distinct on the apex, base concentrically ribbed; pale olive-brown; whorls 4, periphery rounded. Diam. 2·3, alt. axis 1·3 mill.

*Khasi Hills, etc., India.*

N. INTONSA, Godwin-Austen. Pl. 26, fig. 51.

Narrowly umbilicated, slightly hirsute, with irregular growth-ridges, crossed by coarser spiral ribs, a few concentric, fine, distant ribs on the base; olive-brown; whorls 5, periphery rounded. Diam. 3·8, alt. axis 2 mill.

*Khasi Hills, India.*

N. RECONDITA, Godwin-Austen. Pl. 26, fig. 52.

Perforated, regularly very obliquely costulate above, with intermediate riblets at the suture, base smoothish, microscopically regularly striate; pale sienna brown; whorls 4, periphery rounded. Diam. 2·5–3, alt. axis 1·3–1·6 mill.

*Khasi Hills, India.*

N. TROCHULUS, Mollendorff. Pl. 26, fig. 53.

Narrowly perforate, thin, decussately striate; corneous brown; whorls 6, the last obtusely angulated on the periphery.

Diam. 3, alt. 2·5 mill.

*Province of Guang-dung, China.*

N. TURRITA, Mollendorff. Pl. 26, fig. 54.

Narrowly perforate, thin, spirally multilirate above, lightly radiately striulate below; light corneous; whorls 7, periphery angulate. Diam. 2, alt. 2·5 mill.

*Province of Guang-dung, China.*

N. RAFFRAYI, Bourg. Pl. 26, fig. 55.

Imperforate, very thin, diaphanous, very shining, smooth, corneous; whorls 6, periphery rounded. Diam. 4, alt. 4 mill.

*Abyssinia.*

N. MEMBRANACEA, Jickeli. Pl. 26, fig. 56.

Imperforate, thin, very closely irregularly, obliquely costulate-striate; greenish corneous; whorls 4, suture profound, last whorl slightly descending, periphery rounded.

Diam. 2, alt. 1·75 mill.

*Abyssinia.*

It is *N. Steudneri*, Jickeli.

---

N. MICULA, Mousson. (Unfigured.) *Java.*

Section KALIELLA, Blanford, 1863.

Godwin-Austen has published a synoptical list of species of this group, which I follow. He subsequently printed descriptions of several additional species without indicating their relationships; and here again I follow him. But few of the species of *Kaliella* and *Sitala* are accessible to me; judging from these, and the figures of the others, I think too many species have been made, the distinctive characters in some instances being very finely drawn. I add a few Chinese species. Dr. Kobelt supposes that most of the forms of *Conulus* described from Japan also belong to this group; but I prefer to leave them in *Conulus* until those who have better opportunities shall definitely ascertain their position.

A. *Shell trochiform or pyramidal with sides flat, keeled on periphery; base flat with transverse* or *oblique very fine costulation; subperforate.*

*a. Major diameter greater than height of spire.*

N. BARRAKPORENSIS, Pfr. Pl. 26, figs. 57, 58.

Subperforate, thin, striulate, shining, pellucid, brownish corneous; whorls 6, with deep suture, the last whorl with carinate periphery. Diam. 3·5, alt. 3·5 mill.

*Lower Bengal, Himalayas; Madagascar.*

*N. Sivalensis*, Hutton (fig. 58) is a slight variety.

N. PERAKENSIS, Nevill. Pl. 26, fig 59.

Very narrowly umbilicated, finely somewhat irregularly costulate, base closely regularly spirally costulate; whitish gray; whorls 6, the last obtusely keeled.

Diam. 3·8, alt. axis 3·1 mill. *Perak, Malay Peninsula.*

N. VULCANI, Godwin-Austen. Pl. 26, fig. 60.

Longitudinally moderately closely ribbed, radiately ribbed below; color (bleached) probably horny; whorls 6, with shallow suture, the last with angulated periphery. Diam. 3, alt. 2·3 mill.

*Upper Burmah.*

*aa. Spire = or exceeding the major diameter.*

N. SIGURENSIS, Godwin-Austen. Pl. 26, fig. 61.

Subperforate, rather finely longitudinally ribbed, well developed on the base, no spiral sculpture; umber-brown; whorls 7, convex, the last whorl with obtuse keel. Diam. 3·25, alt. axis 3 mill.

*Nilghirri Hills, India; Madagascar.*

N. CHERRAENSIS, Godwin-Austen. Pl. 26, figs. 62, 63.

Scarcely perforate, longitudinally very finely regularly costulate, very finely, regularly, spirally sculptured on the base; color dull brown; whorls 6, a distinct sulcation on the keel of the last whorl. Diam. 2·5–3, alt. axis 2·3–3 mill.

*Khasi Hills; Lower Bengal.*

The latter country furnishes a slight varietal form (fig. 63).

*aaa. With strong, distant costulation.*

N. COSTULATA, Godwin-Austen. Pl. 26, fig. 64.

With distant, very distinct ribs terminating at the peripheral keel, irregularly spirally striate below; very pale olivaceous brown; whorls 6, suture margined by the peripheral rib.

Diam. 3·3, alt. axis 2·8 mill.

*Dafla Hills, Assam.*

Not fully adult.

N. SUBCOSTULATA, Godwin-Austen. Pl. 26, fig. 65.

Perforation covered, with well-defined longitudinal costulæ above, and fine radiating striæ on the base; pale sienna-brown; whorls 6, the last rather strongly keeled.

Diam. 2·8, alt. axis 2 mill.

*N. Khasi Hills, India.*

*b. Spire high, sides convex, subangulate on the periphery.*

N. MUNIPURENSIS, Godwin-Austen. Pl. 27, figs. 66, 67.

Very finely longitudinally costulate, the sculpture continuing

concentrically on the base; dull ochraceous; whorls $6\frac{1}{2}$, the last somewhat obtusely angulated on the periphery.

Diam. 3, alt. axis 3 mill.

*Munipur Hills, N. E. India.*

A variety with $5\frac{1}{2}$ whorls and finer sculpture (fig. 67), occurs on the Naga Hills, 5000 ft. alt.

N. ASPIRANS, Blanford. Pl. 27, fig. 68.

Scarcely perforate, thin, corneous, obscurely striulate; whorls 7, the peripheral angle obtuse, evanescent near the aperture.

Diam. 2, alt. 3 mill.

*Nilghiri Mts.*

N. KHASIACA, Godwin-Austen. Pl. 27, fig. 69.

Imperforate, microscopically striate, quite smooth under an ordinary lens; glassy white; whorls 8, the last very obtusely angulate on the periphery. Diam. 2·3, alt. 2·7 mill.

*Khasi Hills.*

*bb. Spire higher.*

N. FASTIGIATA, Hutton. Pl. 27, fig. 70.

Perforation covered, regularly finely longitudinally striated; pale brown; whorls 8, with shallow suture, periphery obtusely angulated. Diam. 3·7, alt. axis 3·8 mill.

*N. W. Himalayas*, 5000 to 7000 ft. alt.

N. ELONGATA, Godwin-Austen. Pl. 27, fig. 71.

Imperforate, irregularly longitudinally costulate, with a few spiral striæ on the base near the umbilical region; pale ochraceous brown; whorls 10, the last with obtuse peripheral angle.

Diam. 3·3, alt. axis 5 mill.

*c. Base tumid below.*

N. JAINTIACA, Godwin-Austen. Pl. 27, fig. 72.

Finely longitudinally costulate above, concentrically on the base; pale olivaceous brown; whorls 5+, the last with obtusely angulated periphery. Diam. 3·3, alt. axis 2·3 mill.

*S. Jaintia Hills, India*, alt. 5350 ft.

N. NAGAENSIS, Godwin-Austen. Pl. 27, fig. 73.

Subperforate, rather thin, finely regularly longitudinally costulate, extending across the base; pale horny brown; whorls 6, the last distinctly carinated on the periphery.

Diam. 3·6, alt. axis 2·6 mill. *Naga Hills, India.*

N. GRATIOSA, Godwin-Austen. Pl. 27, fig. 74.

Narrowly perforated, finely regularly costulate, extending across the base also; pale horny brown; whorls 5, the last with peripheral angulation. Diam. 3·5, alt. axis 2·5 mill.

*Naga Hills, 8375 feet alt.*

N. TERIAENSIS, Godwin-Austen. Pl. 27, fig. 75.

Narrowly perforate, upper whorls obliquely longitudinally striate; color bleached; whorls 5, suture narrowly margined; last whorl sharply keeled. Diam. 3·6, alt. axis 2 mill.

*Teria Ghat, southern base of Khasi Hills.*

B. *Shell globosely conoid, sides convex, aperture small, subperforate, closely finely longitudinally costulate.*

*a. Rounded on last whorl.*

N. NANA, Hutton. Plate 27, fig. 76.

Smooth, the very fine longitudinal sculpture only visible under a lens; pale ochraceous; whorls 6, suture well impressed. Diam. 3, alt. axis 2 mill.

*N. W. Himalayas.*

N. RESINULA, Godwin-Austen. Pl. 27, fig. 77.

Narrowly perforate, beautifully closely longitudinally costulate; pale ochraceous; whorls 6, suture impressed. Diam. 2·4 mill, alt. axis 2 mill.

*Khasi Hills.*

N. SIKKIMENSIS, Nevill. Pl. 27, fig. 78.

Narrowly perforate, sculpture extremely fine and close; pale sienna brown; whorls 6. Diam. 2·3, alt. axis 2. mill.

*E. Himalayas.*

N. BULLULA, Hutton. Pl. 27, fig. 79.

Narrowly perforate, very finely longitudinally costulate; whitish horny; whorls 5, the last somewhat descending, obscurely subangulate on the periphery. Diam. 4, alt. axis 3 mill.

*N. W. Himalayas.*

N. FLATURA, Godwin-Austen. Pl. 27, fig. 80.

Apparently smooth, finely ribbed under a lens; horny brown; whorls 5, suture well impressed. Diam. 2·3, alt. axis 1·5 mill.

*Munipur.*

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*b. Subangulated on periphery.*

N. LHOTAENSIS, Godwin-Austen. Pl. 27, fig. 81.

Imperforate, delicately ribbed above, quite smooth below; pale sienna brown; whorls 5. Diam. 2·3, alt. axis 1·6 mill.

*Lhota, Naga Hills.*

N. ANIMULA, Godwin-Austen. Pl. 27, fig. 82.

Sculpture irregular, minute; color pale horny; whorls 5, suture moderately impressed. Diam. 2·6, alt. axis 1·9 mill.

*Khasi Hills.*

***

N. LAILANGKOTENSIS, Godwin-Austen. Pl. 27, fig. 83.

Narrowly umbilicated, covered with a strong epidermis, longitudinally costulate, crossed by regular fine spiral sculpture; pale ochraceous; whorls 5, subangular on the periphery.

Diam. 4·8, alt. axis 2·3 mill.

*Lailangkote, Teria Ghat*, etc.

N. KEZAMAHENSIS, Godwin-Austen. Pl. 27, fig. 84.

Moderately umbilicated, covered with a strong epidermis, sculpture rather coarse, decussated, like cloth, the longitudinal ribbing the strongest; color bleached; whorls $5\frac{1}{2}$, the last sharply keeled on the periphery and flattened on the base.

Diam. 4·1, alt. axis 2 mill.

*Kezamah*, etc., *Naga Hills.*

N. BURRAILENSIS, Godwin-Austen. Pl. 27, fig. 85.

Narrowly perforate, decussated, color pale dull ochraceous; whorls 5, the periphery sharply keeled. Diam. 5·7, alt. 2·4 mill.

*Burrail range, Naga Hills.*

N. RUGA, Godwin-Austen. Pl. 27, fig. 86.

Narrowly perforate, with strong epidermis; sculpture like cloth, irregular, the longitudinal ribs the strongest, smoother below; pale horny brown; whorls 5, the last angular at the periphery; aperture with a tooth-like process directed obliquely backward, just within, on the lower margin.

Diam. 3·6, alt. axis 1·8 mill.

*Naga Hills; Shiroifurar Peak*, 9000 ft. alt.

The apertural tooth appears to be formed during periods of arrested growth, the old edge of the aperture being apparent

near it; in some specimens two teeth are seen, one behind the other.

N. Nevilli, Godwin-Austen. Pl. 27, fig. 87.

Umbilicated, thin, fragile, very obliquely distantly costulate; olive-brown; whorls 5, the last with a line of pointed hairs on the subangulated periphery. Diam. 7·7, alt. axis 3·5 mill.

*Darjiling.*

N. Leithiana, Godwin-Austen. Pl. 28, fig. 88.

Narrowly umbilicated, sculpture irregular growth-lines, covered with an olivaceous epidermis; whorls $6\frac{1}{2}$, peripheral carina acute; columellar margin upright, short. Diam. 7, alt. axis 2·4 mill.

*Ceylon.*

N. Dikrangensis, Godwin-Austen. Pl. 28, fig. 89.

Imperforate, with microscopic growth-lines; pale amber color; columellar lip strong, perpendicular, slightly protruding in the middle. Diam. 1·6, alt. axis 1·1 mill.

*Dikrang Valley, Dafla Hills, Assam.*

Smaller, with less conoid spire, and much more rounded below than the next species.

N. Nongsteinensis, Godwin-Austen. Pl. 28, fig. 90.

Subperforate, very minutely longitudinally ribbed; pale ochraceous; whorls 8, the last obtusely keeled; columellar lip perpendicular, short, thickened. Diam. 2, alt. axis 1·7 mill.

*Khasi Hills.*

N. Tirutana, Godwin-Austen. Pl. 28, fig. 91.

Solid, smooth, with a few indistinct growth-lines; color bleached; whorls 6, the last obtusely angulated on the periphery; peristome rather thickened, columellar margin strong, vertical, with a distinct thickening or callus on the lower margin. Diam. 1·8, alt. axis 1·3 mill.

*North Khasi Hills.*

N. Chennelli, Godwin-Austen. Pl. 28, fig. 92.

Imperforate, very finely longitudinally striate, smooth below, apparently slightly and finely hairy when fresh; pale horny brown; whorls 6+, suture narrowly margined; columellar lip short, perpendicular, thickened. Diam. 3·6, alt. 2 mill.

*Lhota, Naga Hills.*

N. BICILIATA, Pfr. Pl. 28, figs. 7, 8.

Perforate, thin, pellucid, obliquely plicate, bicarinate, the carinæ with tufts of hairs; corneous; whorls $4\frac{1}{2}$, the upper carina appearing on the spire. Diam. 7·5, alt. 3·5 mill.

*Ceylon.*

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N. PELIOSANTHI, Mörch (unfigured). *Calcutta.*

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*Chinese Species.*

N. DEPRESSA, Mollendorff. Pl. 28, fig. 93.

Narrowly perforated, thin, closely striulate above, almost smooth below; yellowish; whorls 6, the last with peripheral angulation. Diam. 3, alt. 2·25 mill.

*Hongkong* and *Canton.*

N. SCULPTA, Mollendorff. Pl. 28, fig. 94.

Narrowly perforate, pellucid; lightly costulate above, very finely striulate below; yellowish corneous; whorls $4\frac{1}{2}$, the last obtusely angulated on the periphery. Diam. 2·75, alt. 1·75 mill.

Near *Macao.*

N. RUPICOLA, Mollendorff. Pl. 28, fig. 95.

Narrowly perforate, very lightly striulate, thin, subpellucid, corneous; whorls $6\frac{1}{2}$, the last subacutely angulated. Diam. 3·25, alt. 3 mill.

*Province of Guang-dung, China.*

N. RAYMONDI, Tryon. Pl. 28, fig. 96.

Narrowly perforate, very lightly striulate, thin, subpellucid, shining, light corneous; whorls $6\frac{1}{2}$, with profound suture, periphery rounded. Diam. 3·3, alt. 3 mill.

*Province of Guang-dung, China.*

The original name given by Mollendorff to this species, *N. monticola*, being preoccupied by Hutton, I give it a new one in honor of Mr. S. Raymond Roberts, the Recorder of the Conchological Section of the Philadelphia Academy of Natural Sciences.

N. FRANCISCANA, Gredler. Pl. 28, figs. 97, 98.

Narrowly umbilicated, very minutely striulate, fulvous; whorls 6, suture profound, periphery rounded. Diam. 3·5, alt. 3 mill.

*Hounan, China.*

Var. GREDLERIANA, Heude. Fig. 98.

Narrowly umbilicated, fulvous, very finely striulate smoothish below; whorls 6, the last obtusely angulated periphery. Diam. 3, alt. 3·5 mill.

*Hounan,*

N. IMBELLIS, Heude. Pl. 28, fig. 99.

Narrowly perforate, pellucid, minutely decussated; ch colored; whorls 5½, the last obtusely angulated on the per Diam. 3·75, alt. 3 mill.

*Department of Ning-kouo,*

N. HONGKONGENSIS, Mollendorff. Pl. 28, fig. 100.

Nearly covered perforate, lightly, closely decussated pellucid, a little shining, smooth below; yellowish cor whorls 7, the last with angulated periphery.

Diam. and alt. 3·5 mill.

*Hon*

N. POLYGYRA, Mollendorff. Pl. 28, fig. 1.

Imperforate, very minutely striulate, pellucid, slightly sh light corneous; whorls 9½–10, flattened, the last acutely lated on the periphery. Diam. 2·6, alt. 2·8 mill.

*Province of Guang-dung,*

Subgenus ORPIELLA, Gray, 1855.

N. SCORPIO, Gould. Pl. 28, fig. 2.

Rounded, depressed, reddish chestnut, tessellated with late radiating bands, hardly convex below, spire dep whorls 4½, convex. Diam. 15, alt. 10 mill.

*Fiji I*

Subgenus XESTA, Albers., 1850.

N. BELLA, Pfr. Pl. 17, fig. 53.

Perforate, rather thin, lightly, closely, obliquely s shining; light purplish chestnut color, more yellowish the periphery, light yellow around the umbilicus, with a white band bordered above by a brown line on the peri suture narrowly white-margined; whorls 5½, the last slightly descending at the aperture. Diam. 40, alt. 28 mil

*Mo*

The forms which Pfeiffer subsequently figured in No

Conchologicæ as varieties of this species, must be referred to *N. rareguttata*, Mousson.

N. VITELLUS, Shuttlew. Pl. 18, figs. 67, 68.

Narrowly perforate, moderately solid, incremental striæ conspicuous, with indistinct spiral lines; yellowish, obliquely indistinctly strigate with darker yellow, spire becoming violaceous towards the apex, suture narrowly white-margined below, aperture yellowish; whorls 5½–6, the last not descending, periphery rounded. Diam. 35–46, alt. 22–30 mill. *Celebes.*

N. RAREGUTTATA, Mousson. Pl. 17, figs. 54–57; Pl. 18, figs. 58–60.

Narrowly perforate, smooth, lightly rugosely marked by growth-lines; color varying from light yellowish white to light purplish chestnut, becoming darker on the spire and lighter below the periphery, with a narrow chocolate peripheral band, showing above the suture in the spire-whorls, whole surface marked by irregular short dashes of a darker color, with a spiral direction; whorls 5½, the last slightly descending anteriorly. Diam. 32, alt. 26 mill. *Java.*

Var. CREBRIGUTTATA, Martens. Pl. 17, fig. 56.

Subglobose, a little more solid, with slightly wider perforation; purplish chestnut, with two yellowish bands, one on the periphery and a wider, more diffused one next below the suture, maculations as in the type, umbilical region yellowish.

Pfeiffer considered this a variety of *N. bella.*

Var. VENUSTA, Martens. Pl. 17, figs. 54, 55.

Scarcely distinguished from the type; light-colored, the maculations obscure or obsolete.

Var. SPARSA, Mousson. Pl. 18, fig, 60.

Yellowish pink, unicolored throughout or becoming a little darker on the spire, not banded, maculations distinct.

Var. PEASEANA, Pfr.

Is said by Dr. von Martens to differ from var. *venusta* merely by its obtusely angulated periphery, perhaps the survival, in a local race, of a juvenile character.

The localities given, *Timor* and *Buru*, are doubtful. It is unfigured.

N. STUARTIÆ, Sowerby. Pl. 18, fig. 61.

Obsoletely perforate, or imperforate, rugosely obliquely striate by growth-lines; white, variously fasciated by light chestnut to chocolate bands and lines; whorls 6, the last slightly descending in front. Diam. 40, alt. 26 mill.

*Celebes.*

The banding varies greatly, sometimes nearly covering the shell, in others reduced to a single peripheral band, reappearing above the suture.

N. GYPSACEA, Pfr. Pl. 18, fig. 62.

Narrowly umbilicated, somewhat solid, irregularly striated; slightly shining; chalky, doubly narrowly banded with light brown around the periphery, the upper band visible on the spire; whorls $6\frac{1}{2}$, the periphery subangulated.

Diam. 30, alt. 18 mill.

*Hab.?*

Dr. von Martens thinks this may be a young *N. Stuartiæ*, but the description and figures indicate a distinct species.

N. JULIANA, Gray. Pl. 18, figs. 63, 64.

Narrowly perforate, moderately solid, smoothish, slightly plicate by growth-lines; yellowish white or rosy white, with a chestnut band below the suture, a broad one below the periphery and another broad one around the perforation; whorls 5, the last not descending, obtusely angular on the periphery.

*Ceylon.*

It is *N. rosacea*, Sowb.; *N. Dufourii*, Grat.; *N. citrinoides*, Grat., and *N. commendabilis*, Fér.

N. GANOMA, Pfr. Pl. 18, figs. 65, 66.

Narrowly umbilicated, rather solid, smoothish, with lightly rugose growth-lines; epidermis yellowish horny, with a narrow chestnut band below the suture, and another, sometimes broadly diffused below the periphery, also broadly chestnut-banded around the umbilicus; whorls 5, the periphery obtusely angulated. Diam. 51, alt. 26 mill.

*Ceylon.*

More depressed than *N. Juliana*, but very closely allied to it.

N. LENNEPIANA, Pfr. Pl. 18, fig. 69.

Narrowly perforate, thin, closely lightly obliquely striate, diaphanous; white, variously lined and banded with light brown; whorls $5\frac{1}{2}$, suture profound. Diam. 32, alt. 22 mill.

*Hab. unknown.*

N. NEMORENSIS, Müller. Pl. 19, fig. 70.

Subperforate, solid, shining; white, with narrow chocolate bands, usually one below the suture, a second on the periphery, and a third, frequently obsolete, on the base; whorls 6. Diam. 33, alt. 25 mill. *Celebes.*

Is *N. nemoralis*, Müll. (not Linn.); *N. cretacea*, Born; *N. Neuvardii*, De Haan.

N. BROTII, Bonnet. Pl. 19, fig. 71.

Subimperforate, moderately solid, lightly obliquely striated, a little shining; opaque, yellowish white, becoming purplish towards the apex, lighter on the base, with three equidistant brown bands on the last whorl, aperture yellowish, showing the external bands, columellar margin white; whorls 6, suture distinct. Diam. 33, alt. 31 mill.

*Borneo.*

N. BIMAENSIS, Mousson. Pl. 19, fig. 72.

Subperforate, obliquely striate, the base flattened and shining; milk-white, without bands or markings; whorls $6\frac{1}{2}$, the last subangulate on the periphery. Diam. 32, alt. 31 mill.

*Ins. Bimah.*

N. OVIVITELLUS, Reeve. Pl. 19, fig. 73.

Scarcely perforate, obliquely rugosely striated, shining; rosy yellow, white-margined at the suture; whorls 5. Diam. 33, alt. 20 mill.

*Amboina.*

N. HALATA, Mousson. Pl. 19, fig. 74.

Scarcely perforate, thin, smooth, diaphanous; bluish green, either unicolored or bifasciate, with light chestnut; whorls 6, the last obtusely angulated on the periphery, the angle becoming evanescent anteriorly. Diam. 28, alt. 19 mill.

*Java.*

N. TROCHUS, Müll. Pl. 19, figs. 75–78.

Subperforate, rather solid, growth-lines oblique, subrugose, slightly shining; white, yellowish or yellowish green, with a

wide yellowish brown band, or several subconfluent lines on and above the periphery, appearing on the spire, sometimes without bands; whorls 6. Diam. 25, alt. 22 mill.

*Macassar, Celebes.*

The synonymy includes *N. colorata*, Mousson, *N. circumpicta*, Mousson, and *N. sulphurea*, Reeve (fig. 78).

N. CIDARIS, Lam. Pl. 19, fig. 79.

Narrowly perforate, with the growth-lines crossed by numerous slight impressed spiral lines, and lightly malleated, shining; yellowish white, with a chestnut-colored peripheral band; whorls 5½–6, suture subcrenulated, periphery rounded. Diam. 41, alt. 29·5 mill.

*Timor.*

*N. tumens*, Desh., is a synonym. *Helix rapa*, Müll., is insufficiently defined; it has been referred to *N. Humphreysiana*, Lea, but may be identical with the present species.

N. MOUSSONI, Pfr. Pl. 19, fig. 80.

Perforate, smooth, the growth-lines crossed by very faint close, engraved spiral striæ, shining, diaphanous; whitish, with a single narrow chestnut line above the periphery and appearing on the spire; whorls 6, suture submargined, periphery angulated. Diam. 38, alt. 23 mill.

*Java?*

N. GLUTINOSA, Metcalfe. Pl. 19, figs. 81, 82.

Perforate, thin, with very minute spiral lines, shining; light chestnut-color above, becoming yellowish brown below the carina, which carries a dark chestnut band, more or less distinctly margined below with yellow; whorls 6, the last with compressed peripheral carina. Diam. 28, alt. 14·5 mill.

*Borneo.*

N. CAPITANEA, Pfr. Pl. 19, fig. 83.

Perforate, thin, very shining, with very minute spiral lines; light yellowish corneous, with a chestnut line immediately above the carina, showing on the spire; whorls 5, rapidly increasing, the last acutely carinate. Diam. 23, alt. 11 mill.

*S. Cristoval, Solomon Is.*

N. CITRINA, Linn. Pl. 20, figs. 88–94.

Shell perforate, shining, obliquely slightly striulate, with a few more or less distinct spiral engraved lines; yellowish white,

yellow-orange or reddish violet, often dark banded, with an opaque white zone at the periphery and another at the suture; whorls 5, periphery rounded. Diam. 39, alt. 22 mill.

*Amboina*, *Ceram*, *Buru*.

*N. variegata*, Humph., and *N. atrorubra*, Lesson, are synonyms. The varieties include:

Var. TYPICA. Pl. 20, fig. 89.

Yellowish or violaceous brown, with or without peripheral band, sometimes violaceous brown above, yellow below.

Var. TIARA, Beck. Pl. 20, fig. 92.

More elevated, violet-brown, with darker band, the white bands very distinct.

Var. COLUMELLARIS, Beck. Pl. 20, figs. 91, 95.

Rather thick, sculpture strong, spire elevated; yellowish or flesh-yellow, banded, usually violet-brown around the umbilicus.

Var. AURANTIA, Martens. Pl. 20, figs. 88, 90.

Orange-colored, often changing to violaceous above, the white bands well marked, with usually a narrow dark peripheral band, umbilical region darker colored.

Var. PRÆTEXTA, Martens. Pl. 20, fig. 93.

Yellowish, with two strong chocolate bands, one below the periphery, the other on the upper part of the whorl, and showing on the spire, peripheral white band strong.

Var. OPACA, Martens. Pl. 20, fig. 94.

Thin, scarcely shining, weakly sculptured, last whorl obtusely angulated; citron-yellow, the white banding distinct.

Var. COAGULATA, Pfr.

Yellowish white or alabaster-white, with a faint pellucid sutural band, and an obscure white band on the obtusely angled periphery, the latter sometimes wanting; spire conical. Dr. von Martens considers it an albino.

N. AULICA, Pfr. Pl. 20, figs. 96–100.

Narrowly perforated, thin, striated by growth-lines, with usually a few light spiral impressed lines above, diaphanous, shining; yellowish to purple-brown, unbanded, or with a strong

dark peripheral band, often slightly showing on the upper whorls, suture sometimes narrowly white-margined; whorls $4\frac{1}{2}$, the last slopingly flattened above to an obtuse peripheral angle, and marked by one or two irregular impressed spiral sulci or seams. Diam. 48, alt. 23 mill.

*Moluccas.*

The larger size, more depressed form, obtuse peripheral angle, depressed and seamed body-whorl and usual absence of the opaque white banding serve to distinguish this species from *N. citrina.*

Var. GIBBOSA, Mart. Pl. 20, fig. 98.

More complanate above, the last whorl gibbously tumid below the suture, yellowish, scarcely banded.

N. LUCTUOSA, Beck. Pl. 19, fig. 85.

Perforate, conoidally depressed, rather thin, striated; chestnut-colored above, with a wide white band above the periphery, white below, and chestnut-colored around the umbilicus, or white, with a chestnut-colored peripheral band, apex usually dark violaceous; whorls $4\frac{1}{2}$. Diam. 32, alt. 17 mill.

*Moluccas.*

N. ZOSTEROPHORA, Pfr. Pl. 19, fig. 84.

Scarcely perforate, solid, obliquely striulate, with slight crowded spiral lines; whitish, with a chestnut band above the periphery, another near the suture, and a broad one below the periphery; whorls 6. Diam. 34, alt. 19 mill.

*Hab. unknown.*

N. FULVIZONA, Mousson. Pl. 21, figs. 1–4.

Narrowly perforate, moderately solid, distinctly striulate, and with much lighter, more distant spiral lines, somewhat shining; whitish or light yellowish white, becoming brown at the apex, with a narrow yellowish brown or chestnut band above the periphery, showing above the suture on the spire; whorls 5, suture crenulately striulate. Diam. 35–41, alt. 20–25 mill.

*Celebes.*

A variety (figs. 3, 4) is olivaceous above, or all over, the band wider or separated into two contiguous bands, sometimes narrowly chestnut-colored around the umbilicus.

N. WALLACEI, Pfr. Pl. 21, fig. 5.

Subperforate, moderately solid, lightly striate; yellowish, with a narrow chestnut-colored peripheral band, and scattered dark pellucid dots, base lighter, obsoletely spirally sulcate, aperture chestnut-colored, with a light band; whorls 5, suture white-margined, last whorl subdeflected in front.

Diam. 31, alt. 17 mill.

*Macassar.*

There is a minor variety with the pellucid spots light-colored, the aperture white with a chestnut band.

N. PARCIPILA, Martens. Pl. 19, figs. 86, 87.

Narrowly perforate, striulate, set with occasional tufts of short hairs above, shining below; yellowish white, with a broad chestnut band; whorls $4\frac{1}{2}$, suture white-margined, last whorl obtusely angulated. Diam. 30, alt. 20 mill.

*Moluccas.*

N. SPIRALIS, Le Guillou. Pl. 21, fig. 6.

Narrowly perforate, growth-lines rugose, slight; white or yellowish with a narrow chestnut band above the periphery, showing on the spire; whorls 5. Diam. 34, alt. 20 mill.

*Ins. Arrow.*

Sometimes the band is white-margined above and below.

N. SULFURATA, Martens. Pl. 21, figs. 7, 8.

Narrowly perforate, lightly striulate; yellow, becoming lighter on the base, with two chestnut bands (sometimes uniting into one) above the periphery, the upper one showing on the spire; whorls 4. Diam. 25, alt. 17 mill.

*Ins. Batjan* and *Halmahera, Moluccas.*

N. BASILESSA, Benson. Pl. 21, figs. 9, 10.

Narrowly umbilicated, solid, striulate; epidermis yellowish brown, under which the shell is purplish, becoming whitish towards the umbilicus, above the periphery is a narrow chocolate band, white-margined above it; whorls 5, the last descending a little in front. Diam. 48, axis 21 mill.

*Travancore, India.*

N. MADERASPATANA, Gray. Pl. 21, figs. 11, 12.

Very narrowly perforate, rugosely striated, light reddish brown, fasciated and clouded with white, or yellowish white, nearly unicolored; whorls 5–6. Diam. 32, alt. 19 mill.

*Pondicherry*, *Maderaspatam* and *Mangalore*, *India*.

*N. Pondicherriensis*, Pfr., and *N. Korékouké*, Beck, are synonyms.

N. CHASTELLII, Fér. Pl. 21, fig. 13.

Perforate, rugosely striate; maculated with light chocolate and white, the white usually predominating on the base; whorls 6–6½, the last with a white band above the obtusely angulated periphery. Diam. 23–27, alt. 12–14 mill. *Madagascar*.

*N. Cracherodii*, Gray, is a synonym.

N. MONOZONALIS, Lam. Pl. 21, fig. 15.

Perforate, shining, very slightly decussated above; chestnut-colored, with a white zone above the periphery and white around the umbilicus; whorls 5. Diam. 50, alt. 26 mill. *Amboina*.

Is *N. unizonalis*, Lam.

N. OBLIQUATA, Reeve. Pl. 21, fig. 16.

Perforate, solid, striate, irregularly lightly decussated by distant impressed spiral lines in the last whorl; light yellowish brown, with a narrow, peripheral chestnut band, white-bordered above; whorls 5½. Diam. 54, alt. 35 mill. *Sumatra*, *Borneo?*

*N. Teysmanni*, Mousson, is a synonym.

* * *

*Shells of lighter structure, connecting with Xestina.*

N. IGNESCENS, Pfr. Pl. 22, fig. 17.

Subperforate, vitrinoid, thin, striate, very lightly decussated by growth-lines and impressed spiral striæ, shining; yellowish brown; whorls 4½. Diam. 27, alt. 15 mill.

*Ins. Batchian.*

N. CRESPIGNYI, Higgins. Pl. 22, fig. 18.

Narrowly perforate, thin, pellucid, polished, lightly radiately striulate; chestnut-colored, with a narrow peripheral yellowish band; whorls 6, the suture scarcely margined with white.

Diam. 25, alt. 18 mill. *Ins. Labuan.*

N. GODEFFROYANA, Garrett. Pl. 22, fig. 19.

Subperforate or imperforate, striated above, smoother below, subpellucid, shining; light yellowish corneous, paler on the base; whorls 7. Diam. 38, alt. 25 mill.

*Vanna Levu, Viti Is.*

N. PFEIFFERI, Phil. Pl. 22, figs. 20, 21.

Subperforate, smooth, shining, very thinly plicatulate at the submargined suture; chestnut-brown, lighter below; becoming whitish around the umbilicus, aperture chestnut-colored; whorls 6–6½. Diam. 28, alt. 16 mill.

*Viti Islands.*

*N. lurida*, Gould (fig. 21) is a synonym.

N. NOULETI, Le Guillou. Pl. 22, figs. 22–24.

Subperforate, closely obliquely striate above, with slight sparse engraved spiral lines, smoother and polished below; chestnut to chocolate-brown, lighter, sometimes whitish around the umbilicus; whorls 5½. Diam. 29, alt. 15 mill.

*Viti Islands.*

It is *N. rubricata*, Gould (fig. 23); *N. inornata*, Hombr. et Jacq., and *N. Otareæ*, Garrett (fig. 24).

N. RUFESCENS, Grat. Pl. 22, fig. 27.

Subperforate, a little shining, regularly closely striated above, irregularly decussated by spiral lines, smooth below; chestnut brown, lighter below; whorls 6, suture submargined.

Diam. 26·5, alt. 15 mill.

*Madagascar?*

This is *N. Grateloupi*, Gray. Its distinctness from *N. Nouleti*, and its locality may both be questioned.

N. HOYTI, Garrett. Pl. 22, fig. 25.

Subperforate, plicately striate below the suture, subpellucid, shining; light yellowish brown, paler on the base, suture very narrowly lined with chestnut; whorls 6. Diam. 21, alt. 15 mill.

*Tavinni I., Viti archip.*

N. TENELLA, Garrett. Pl. 22, fig. 28.

Subperforate, shining and very lightly striate above, smoother and more polished below; yellowish white, lighter on the base; whorls 6½, suture slightly margined. Diam. 17, alt. 11 mill.

*Kiva, Viti Islands.*

N. FRAGILLIMA, Mousson. Pl. 22, fig. 29.

Perforate, diaphanous, a little shining, light corneous; whorls $4\frac{1}{2}$, obscurely striulate, the last with obtusely angulated periphery. Diam. 13, alt. 8 mill.

*Viti Levu* and *Kantavu*, *Viti Is.*

N. VITELLINA, Pfr. Pl. 22, fig. 30.

Narrowly perforate, very minutely decussated above, scarcely shining, smoother below; yellowish brown, lighter on the base; whorls $5\frac{1}{2}$, the last slightly descending at the aperture, periphery very obsoletely angulated. Diam. 29, alt. 18 mill.

*Nilgherry Mts.*, *India.*

N. LIGULATA, Fer. Pl. 22, fig. 31.

Perforate, longitudinally striated and minutely decussated above, smooth below; white or pale brownish, with a rather wide light yellowish brown band above the periphery, sometimes covering the entire upper surface; whorls 5. Diam. 26, alt. 17 mill.

*Bengal.*

N. RUBELLOCINCTA, Blanford. Pl. 22, fig. 32, 33.

Perforate, thin, smooth, a little shining, minutely striulate with very minute decussating spiral lines; yellowish corneous, with a wide peripheral band of light reddish brown; whorls 6–$6\frac{1}{2}$, the last with subangulated periphery. Diam. 35, alt. 14 mill.

*Mt. Garo*, *India.*

N. COMORENSIS, Morelet. Pl. 22, fig. 34.

Covered perforate, thin, diaphanous, thinly plicately striate above, more shining and smoother below; light brownish corneous, the base lighter; whorls $5\frac{1}{2}$, suture submargined, the last whorl acutely angulated at the periphery. Diam. 15·5, alt. 9 mill.

*Comoro Is.*

N. INDUTA, Pfr. Pl. 22, figs. 35, 36.

Narrowly perforate, rather solid, above closely decussated by plicate striæ and spiral lines, striate below; yellowish brown, with a diffused darker chestnut band beneath the periphery, base lighter, umbilical region chestnut-colored; whorls 5, the last with angulated periphery. Diam. 21, alt. 11 mill.

*Java.*

Martens refers it with doubt to *N. Bataviana*, juvenile.

N. NANINOIDES, Benson. Pl. 22, fig. 37.

Perforate, rather solid, closely distinctly striated above, obsoletely decussated by concentric lines, base smoother, distantly striulate; light orange-brown, or yellowish corneous, whitish and more shining below; whorls 6. Diam. 25, alt. 13 mill.

*Singapore, Chusan.*

The synonymy includes *N. striata*, Gray; *N. orientalis*, Reeve (not Gray), and *N. Isabella*, Hombr. and Jacq.

N. CELEBENSIS, Pfr. Pl. 22, fig. 38.

Perforate, rather solid, closely rugosely striated above; cinnamon brown, base lighter and smoother, interior pearly white; whorls 7. Diam. 27·5, alt. 18 mill. *Celebes.*

N. UMBILICARIA, Le Guillou. Pl. 22, fig. 39.

Perforate above, closely costulately striate, decussated by slight spiral lines, smooth and shining below; light yellowish corneous, with two approximating, equal, narrow peripheral chestnut lines, the umbilical region stained with chestnut, and sometimes with a sutural zone of the same color; whorls 6, the last with angulated periphery. Diam. 33, alt. 17 mill.

*Sumatra, Rakata, Banka, Java.*

Very closely allied to *N. Javanica*, Lam. Dr. von Martens describes the following varieties:

Var. SUMATRANA, Martens.

Larger, a little more depressed, light reddish brown, the periphery white.

Var. SUNDANA, Martens.

Smaller, subelate, yellowish, with whitish periphery.

Var. VIRESCENS, Martens.

Same form as *Sundana*, greenish corneous, periphery greenish white (*N. albicincta*, Mouss., in Coll.).

Var. BANKANA, Martens.

Smaller, elate, pallid (*N. subjavanica*, Mouss., in Coll.).

N. DESGRAZII, Hombr. and Jacq. Pl. 22, fig. 40.

Perforate, regularly closely striate; light yellowish brown, with two peripheral chestnut lines, umbilical region stained with chestnut; whorls 6, periphery rounded. Diam. 29, alt. 16 mill.

*Sumatra.*

Is possibly a variety of *N. umbilicaria*, Le Guillou.

N. JAVANICA, Lam. Pl. 23, fig. 41.

Perforate, irregularly striate, slightly shining; yellowish or whitish, with a narrow chestnut sutural line, two lines on the periphery, of which the lower is broader, and chestnut stained around the umbilicus; whorls 6–6½, the last obtusely subangulate on the periphery. Diam. 28, alt. 15–16 mill. *Java.*

It is *N. Javacensis*, Fér., and is very closely allied to the preceding species.

N. BELANGERI, Desh. Pl. 23, fig. 42.

Perforate, decussated above by thin striæ, smoother below, translucent, last whorl obtusely angulated on the periphery; rosy yellow, whitish on the base. Diam. 46, alt. 28 mill.

*Pondicherry, Malabar.*

N. BOMBAYANA, Grateloup. Pl. 23, fig. 43.

Perforate, scarcely diaphanous, striulate, and very minutely slightly decussated above; rosy yellow, becoming lighter below; whorls 5, the last with obscure peripheral angle, becoming rounded in front. Diam. 28, alt. 16 mill. *Bombay.*

Is *N. rubescens*, Desh., and *N. Belangeri*, Reeve, not Desh.

N. UTER, Theobald. Pl. 23, fig. 44.

Perforate, thin, undulately decussated above, smooth below; epidermis light olivaceous, under which the shell is chestnut white; whorls 5½, the last with acutely angulated periphery. Diam. 26, alt. 16 mill. *Moulmein.*

N. SOLATA, Benson. Pl. 23, fig. 45.

Perforate, rather solid, radiately striate; bluish white, with a distinct or obsolete narrow chestnut band above the periphery, surface covered with pellucid dots; whorls 5, the last dilated, aperture chestnut-colored. Diam. 23, alt. 13 mill.

*Nilgherry Mts., India.*

It is *N. Menkeana* and *N. soluta* of Reeve's Iconica.

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*Unfigured Species.*

N. COFFEA, Pfr. *Moluccas.*
N. CASTANEA, Müller. *Sumatra.*
N. TURBINATA, Beck. *Tranquebar.*
N. RENITENS, Morelet. *Comoro Is.*
N. BAUDINI, Desh. *New Guinea.*

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Section XESTINA, Pfeffer.

N. SEMIRUGATA, Beck. Pl. 15, fig. 5.

Perforated, rather thin, with incremental striæ, subdecussated above by concentric impressed lines; light yellowish brown; whorls 5. Diam. 31, alt. 21 mill.

*Bengal.*

Is *N. globulus*, Chemn., not Müller.

N. TRANQUEBARICA, Fab. Pl. 15, fig. 6.

Narrowly umbilicated, rather thick, distinctly striated, decussated above by obsolete spiral lines; whitish; whorls $5\frac{1}{2}$, the last descending in front; lip slightly thickened.

Diam. 21, alt 15 mill.

*Tranquebar.*

N. COCHINCHINENSIS, Pfr. Pl. 15, fig. 7.

Perforate, thin, lightly striate, subdecussated above by more remote spiral striæ, scarcely shining, smoother and shining below; light yellowish brown, paler on the base; whorls $5\frac{1}{2}$, the last not descending. Diam. 22·5, alt. 16·5 mill.

*Cochin China.*

N. WAANDERSIANA, Zollinger. Pl. 15, fig. 8.

Subperforate, thin, striulate, with minute spiral lines above, somewhat shining; yellowish, lighter on the base and becoming reddish on the spire; periphery encircled by two narrow chestnut bands, one of which appears on the spire, umbilical region reddish, lip salmon-color, interior of aperture fasciate with white; whorls $5\frac{1}{2}$, the last subangulated on the periphery.

Diam. 35, alt. 26 mill.

*Ins. Bali, Java.*

N. BALIENSIS, Mousson. Pl. 15, fig. 9.

Subperforate, obliquely striate, with a few impressed spiral lines above; orange-colored or purplish green, becoming purple-red on the spire, aperture grayish blue, lip orange-red; whorls $5\frac{1}{2}$, suture submarginate, last whorl evanescently subangulate.

Diam. 27, alt. 21 mill.

*Ins. Bali, Java.*

Dr. von Martens considers this and the preceding species varietal forms only, adopting *Baliensis* for the specific designation.

N. FULVIDA, Pfr. Pl. 15, fig. 10.

Subperforate, thin, pellucid, very closely minutely granulose above, smooth and shining on the base; light yellowish brown; whorls $5\frac{1}{2}$, periphery rounded. Diam. 31, alt. 22 mill.

*Ins. Mindanao, Philippines.*

It is *N. semiglobosa*, jun.? of Semper.

N. CONOIDALIS, Ads. and Reeve. Pl. 15, fig. 11.

Subperforate, reticulately striated or corrugated above, base radiately striated; reddish olivaceous, lighter below, with a narrow chestnut band above the periphery; whorls 5, suture submargined. Diam. 32, alt. 21 mill.

*Ins. Mindoro, Philippines.*

N. INQUINATA, Busch. Pl. 15, fig. 12.

Subperforate, thin, somewhat shining, minutely granulated above; yellowish horn-color, flamed and maculated with brown; whorls $5\frac{1}{2}$, the last obtusely angulated on the periphery.

Diam. 28, alt. 16 mill.

*Java.*

N. SEMISCULPTA, Martens. Pl. 15, fig. 13.

Perforate, diaphanous, densely costulate above, decussated by very slight spiral striæ, lightly striulate and shining below; reddish chestnut, fading on the base to light olivaceous; whorls 6.

Diam. 25, alt. 16 mill.

*Celebes.*

N. CINCTA, Lea. Pl. 15, figs. 14–18.

Narrowly perforate, obliquely striulate, decussated by sub-undulating close, slight, spiral lines, slightly shining; orange-brown, with a dark chestnut narrow band above the periphery, and showing on the spire, umbilical region chestnut-tinted; whorls 5, the last rounded. Diam. 24–28, alt. 16–21 mill.

*Celebes.*

*N. Steursii*, Shuttl., and *N. Menadensis*, Mouss., are synonyms.

Var. CONTRISTATA, Mouss.

Shell chestnut-colored, with the band yellowish; approaching in color the next species.

N. GARDENERI, Pfr. Pl. 15, fig. 19.

Subperforate, rather solid, the growth-lines decussated above by spiral striæ, somewhat shining, smoother and more shining

below; chestnut-colored, lighter and more yellowish on the base, whorls $6\frac{1}{2}$, the last with a peripheral narrow yellowish white band. Diam. 22, alt. 15 mill.

*Ceylon*, alt. 8000 ft.

N. Dohrniana, Pfr. Pl. 16, figs. 20–22.

Perforate, rather thin, striulate, smoothish, subdiaphanous, base smoother and more shining; yellowish gray; whorls $6\frac{1}{2}$, the last obsoletely angulated on the periphery.

Diam. 31·5, alt. 15 mill.

*Siam.*

N. textrina, Benson. Pl. 16, figs. 23, 24.

Narrowly perforate, rugosely decussated above, smoother below; light brownish white, becoming milk-white on the base; whorls $5\frac{1}{2}$, periphery subangulated. Diam. 29, alt. 13 mill.

*Burmah.*

N. Theodori, Phil. Pl. 16, fig. 25,

Perforate, thin, subdiaphanous, closely costulate above, decussated by concentric impressed lines, base smoother, the sculpture being slighter; yellowish corneous, obsoletely chestnut-margined at the suture, base lighter colored; whorls $6\frac{1}{2}$, the last obsoletely angulate. Diam. 26, alt. 13 mill.

*Mergui, Burmah.*

N. Sophiæ, Gaskoin. Pl. 16, fig. 26.

Perforate, thin, pellucid, obliquely rugose, very lightly decussated by very close spiral lines, smoother below; light yellowish brown or light reddish brown; whorls 5, periphery angular.

Diam. 26, alt. 11·5 mill.

*Lord Howe's Island.*

N. albata, Blanford. Pl. 21, fig. 14.

Subperforate, moderately solid, rugosely striate, with distant impressed spiral lines above, smoother below; ivory-white; whorls $5\frac{1}{2}$, the last subangulate at the periphery.

Diam. 29, axis 17·5 mill.

*Tinnevelly, India.*

N. bistrialis, Beck. Pl. 16, fig. 27.

Very narrowly perforate, thin, fragile, subpellucid, finely striate and with obsolete spiral impressed lines, smoother and polished below; yellowish corneous, with two approximating

narrow chestnut lines above the periphery, the upper one appearing on the spire; whorls 4, rapidly increasing.

Diam. 31, alt. 15 mill.

*Pondicherry, Tranquebar.*

Is *N. exilis*, Chemn. non Müll., and *N. diaphana*, Lea, non Lam.

N. Ceylanica, Pfr. Pl. 16, figs. 28, 29.

Perforate, rather solid, distinctly granulosely decussated above, diaphanous, smoother and polished below; very light orange-brown, with a chestnut thread-like line above the periphery, with or without a white narrow band next it, sometimes unbanded; whorls $4\frac{1}{2}$, periphery very indistinctly angulate. Diam. 26, alt. 13 mill.

*Ceylon.*

Differs from *N. bistrialis* in sculpture and banding.

N. Taprobanensis, Dohrn. Pl. 16, fig. 30.

Perforate, moderately solid, growth-lines very distinct above, lightly, very minutely decussated, smooth and shining below; light orange-brown, with a narrow median chestnut line on the last whorl; whorls 4, the last obsoletely angulated.

Diam. 30, alt. 18 mill.

*Ceylon.*

N. Cyix, Benson. Pl. 17, fig. 44.

Perforate, rather thin, obliquely regularly closely costulate above, subgranularly decussated by rather remote impressed spiral lines, smoother and shining below; corneous, lighter on the base, periphery with a white narrow, inferiorly chestnut-margined band; whorls $4\frac{1}{2}$, the last with obtusely angulated periphery. Diam 23, axis 15 mill.

*Ceylon.*

N. semipartita, Desh. Pl. 16, fig. 31.

Narrowly perforate, decussately striate above; yellowish white, chestnut-zoned in the middle; whorls 5, the last with rounded periphery. Diam. 26, alt. 15 mill.

*Hab. unknown.*

Martens doubtfully refers this species to the synonymy of *N. Wallacei*, Pfr.

N. Mouhoti, Pfr. Pl. 16, fig. 32.

Perforate, rather thin, minutely costulately striate, decussated above with spiral impressed lines; light cinnamon-color above, corneous white and polished below, suture chestnut-margined; whorls 6. Diam. 26–35, alt. 14–17 mill. *Siam.*

Dr. von Martens considers this a synonym of *N. Siamensis.*

N. luteofasciata, Lea. Pl. 16, fig. 33.

Subperforate, minutely decussated above, smooth and shining below; chestnut-brown above, under a thin fugacious gummy epidermis, with a broad yellow peripheral band, base yellow, within a broad chestnut band; whorls $6\frac{1}{2}$, periphery rounded. Diam. 36, alt. 23 mill.

*Ins. Luzon, Philippines.*

I restore Dr. Lea's older name in place of that of Sowerby, *N. gummata*, as adopted by Pfeiffer.

N. velutina, Sowb. Pl. 16, fig. 34.

Covered subperforate, above and on the side minutely granular, covered with a close hairy velvety epidermis; base smooth and polished, separated from the velvety area by an obtuse angle; orange-brown; whorls 6, periphery rounded; aperture brown-margined. Diam. 31, alt. 18 mill. *Philippines.*

It is *N. xantholricha*, Pfr.

N. Tagalensis, Dohrn. Pl. 16, fig. 35.

Subcovered perforate, moderately solid, densely granular and short hairy above, base smooth and shining; yellowish, with a broad chestnut zone on the periphery and another dividing the base, a narrower one margining the suture; whorls 6, periphery rounded. Diam. 31, alt. 19 mill.

*Ins. Luzon, Philippines.*

N. Mörchii, Pfr. Pl. 16, fig. 36.

Perforate, thin, very minutely decussately granular, with very short hairs, diaphanous, base smooth, shining, not bounded by an angle; light corneous, with an obsolete chestnut line on the periphery, and a stronger one on the base; whorls 5, the last with obsolete peripheral angle; aperture pearly with pellucid bands. Diam. 20, alt. 12 mill.

*Ins. Negros, Philippines.*

Is *N. xanthotricha*, var. of Reeve, etc.

N. SIAMENSIS, Pfr. Pl. 16, figs. 37–39.

Perforate, rather solid, granulately decussated above, lightly radiately striate and shining below; light corneous, becoming whitish on the base, sometimes with a chestnut peripheral band, and suture margin; whorls 6. Diam. 25, alt. 12·5 mill.

*Siam.*

*N. Mouhoti*, Pfr., is referred here by Dr. von Martens, who has described a white unbanded variety as *N. Hainesi*.

N. SETIGERA, Sowb. Pl. 16, fig. 40.

Covered subperforate, thin, subgranulate and clothed with a hairy epidermis on the top and side, base smooth and shining; chestnut-colored, with a wide yellow band below the periphery; whorls 6, periphery rounded. Diam. 30, alt. 20 mill.

*Ins. Luzon, Philippines.*

N. CÆSIA, Pfr. Pl. 17, figs. 41–43.

Perforate, thin, pellucid, striulate above, and with slight spiral lines, radiately striate, smoother and shining below; grayish corneous or yellowish; whorls 6, the last angulated on the periphery. Diam. 17, alt. 8 mill.

*Admiralty Is.*

N. BATAVIANA, Busch. Pl. 17, figs. 45, 46.

Perforate, thin, closely costulate above, with microscopic close revolving lines; base smooth, shining; cinnamon-brown above, chestnut-colored below, fading out towards the umbilical region, which is again chestnut-colored; whorls $6\frac{1}{2}$, with obtusely angulated periphery. Diam. 33, alt. 17 mill.

*Java.*

N. ALBIZONATA, Dohrn. Pl. 17, fig. 49.

Subperforate, solid, granulately decussated above, smoother, radiately striated below; light chestnut-colored above, with a peripheral narrow white band, light yellowish brown below; whorls 6, suture pallid-margined, last whorl carinated on the periphery. Diam. 25, alt. 14 mill.

*Ceylon.*

N. LÆTA, Pfr. Pl. 17, fig. 50.

Very narrowly perforated, moderately solid, subgranulate above, smoother below; yellowish white; whorls 6, the last with rugosely carinated periphery. Diam. 35, alt. 18 mill.

*Anamullay Hills, India.*

*Unfigured Species.*

N. Arnotti, Benson. *Cape of Good Hope.*
N. Foullioyi, Le Guillou. *New Guinea.*
N. Salomonis, Le Guillou. *Solomon Is.*

Section Macrochlamys, Benson, 1832.

Mr. Benson describes particularly the habits of the species observed by him, which he first discovered living at Banda, in Bundelkund, on the prone surface of a rock. The animal carries the shell horizontally, or nearly so, is quick in its motions, and, like Helicolimax, it crawls the faster when disturbed, instead of retracting its tentacles like the snails in general. In damp weather it is rarely retracted within its shell, the foot being so much swollen by the absorption of moisture that if it is suddenly thrown into boiling water the attempt to withdraw into the shell invariably causes a fracture of the aperture. In dry weather the foot is retracted, and the aperture is then covered with a whitish false operculum similar to that of the other Helicidæ. The two elongated processes of the mantle are continually in motion, and exude a liquid which lubricates the shell, supplying apparently that fine gloss which is observable in all recent specimens. The fluid poured out from the orifice at the base of the caudal horn-like appendage is of a greenish color; it exudes when the animal is irritated, and at such times the caudal appendage is directed towards the exciting object in such a manner as to give the animal a threatening aspect.—*Godwin-Austen, Shells of India, iii, 76.*

The above author has arranged some of the species in groups, but I cannot make use of his arrangement because it only includes a small portion of the Asiatic species herein included by Pfeiffer. I follow the latter, intercalating Austen's new species as well as I can.

N. vesicula, Benson. Pl. 28, figs. 9–14.

Narrowly perforate, thin, smoothish, shining; light-corneous; whorls 6, suture profound. Diam. 15, alt. 7·5 mill.

*Himalaya Mts.*

Var. Lecythis, Benson. Pl. 28, figs. 12–14.

Subperforate, reddish corneous. Diam. 13–15, alt. 7–9 mill.

*Rajmahal Hills, India.*

*N. mucosa*, Blanford, from the Nilgherry Hills, India, is sup-

posed to be identical. *N. honesta*, Gould, from Burmah, has also been referred here; I think doubtfully, as it appears to me to be distinct.

N. KUMAHENSIS, Theob. and Stolicz. Pl. 28, figs. 15–17.

Narrowly perforate, polished, thin, nearly smooth, rugulosely spirally striate around the umbilicus; corneous; whorls $4\frac{1}{2}$.

Diam. 9·6, alt. 4·5 mill.

*Kumah Hill*, *Arakan*.

N. TURANICA, Martens. Pl. 28, figs. 18–20.

Perforate, closely lightly plicatulate, diaphanous, shining; greenish yellow; whorls 5, suture submarginate.

Diam. 16, alt. 9 mill.

*Valley of Sarafschan*, *Turkestan*.

N. CONVOLUTA, Desh. Pl. 29, figs. 21–23.

Perforate, thin, fragile, smooth; brownish corneous with a central white band; whorls 5, narrow. Diam. 16, alt. 10 mill.

*Sumatra*.

N. CUTTERI, H. Adams. Pl. 29, fig. 24.

Narrowly perforate, thin, highly polished; olivaceous corneous, with a wide chestnut band above the middle, appearing on the spire; whorls $5\frac{1}{2}$, suture narrowly margined.

Diam. 15, alt. 9·5 mill.

*Busan*, near *Sarawak*, *Borneo*.

N. SUBJECTA, Benson. Pl. 29, figs. 25–27.

Perforate, thin, striate, diaphanous, shining; corneous; whorls $6\frac{1}{2}$, suture white margined. Diam. 17, alt. 9 mill.

*Rajmahal Hills*, *India*.

N. NUDA, Pfr. Pl. 29, figs. 28–30.

Scarcely perforate, thin, radiately striulate, pellucid; light brown; whorls 6, suture white margined. Diam. 11, alt. 7 mill.

*Himalaya Mts.*, *India*.

N. GLAUCA, Benson. Pl. 29, figs. 31, 32.

Subperforate, very smooth, shining; glaucous hyaline; whorls $6\frac{1}{2}$. Diam. 12·5, alt. 7·75 mill.

*Almorah*, *Bengal*.

Nevill catalogues a variety intermediate between this and the last species.

N. AUREA, Martens. Pl. 29, figs. 33, 34.

Subcovered perforate, distinctly striulate, very shining; orange brown, a little lighter below; whorls 5, suture violaceous margined. Diam. 12, alt. 6·5 mill.

*Near Kepahiang, Sumatra.*

N. NEPOS, Pfr. Pl. 29, figs. 35, 36.

Perforate, thin, smooth, very shining, pellucid; purplish brown; whorls 5, suture impressed. Diam. 8, alt. 5 mill.

*Ceylon.*

N. PERPAULA, Benson. Pl. 29, fig. 37.

Perforate, rounded below, glassy, obliquely striulate, with spiral lines; umber brown; whorls 4, well rounded. Diam. 2·3, alt. axis 1·3 mill.

*Moulmein.*

N. CONSUL, Pfr. Pl. 29, figs. 38, 39.

Scarcely perforate, lightly striulate and with numerous unequal spiral lines, somewhat shining; reddish corneous, suture dark margined; whorls $6\frac{1}{2}$. Diam. 22, alt. 13 mill.

*Sarawak, Borneo.*

N. PUMICATA, Morelet. Pl. 29, figs. 40–42.

Narrowly perforate, rather thin, smooth, scarcely shining above; brownish corneous, lighter colored and more shining below; whorls 7, suture submargined, violaceous, periphery obtusely angulated. Diam. 26, alt. 16 mill.

*Ajuthia, Siam.*

N. BOUCOURTI, Morelet. Pl. 29, figs. 43–45.

Perforate, thin, very lightly striate, shining, diaphanous; brownish corneous, lighter and more shining below; whorls 7, suture narrowly margined, last whorl obtusely angled above the middle. Diam. 28, alt. 15 mill.

*Battambang, Cambodia.*

N. CINNAMOMEA, Val. Pl. 29, figs. 46–48.

Narrowly perforate, thin, shining, diaphanous, very minutely irregularly striate; cinnamon-brown, lighter below; whorls 7, suture smooth, periphery rounded. Diam. 22, alt. 11 mill.

*Natuna Is., Chinese Sea; Penang.*

I follow Pfeiffer in placing this species in the present group; in some of its more obvious characteristics it appears to be nearly related to *N. Pfeifferi* of the group Xesta.

N. HYALINA, Martens. Pl. 29, figs. 49–51.

Scarcely perforate, striulate, shining; yellowish corneous; suture margined, purplish chestnut; whorls $6\frac{1}{2}$, periphery rounded, umbilical region excavated. Diam. 22, alt. 12 mill.

*Western Borneo.*

N. CYCLOIDEA, Albers. Pl. 30, figs. 52–54.

Very narrowly umbilicated, thin, smoothish, shining; yellowish corneous, base lighter; whorls 7, suture margined. Diam. 20, alt. 9 mill. *Himalaya Mts.*

N. CONSEPTA, Benson. Pl. 30, figs. 55, 56.

Barely perforate, smooth, shining, rather thick; pale olivaceous ochre, more deeply colored near the peristome; whorls 6; peristome slightly thickened. Diam. 14·5, alt. axis 6 mill.

*Moulmein, Pegu.*

Godwin-Austen thinks it possibly the same as the preceding species.

N. BENOITI, Crosse and Fischer. Pl. 30, figs. 57, 58.

Scarcely perforate, thin, hyaline, shining; corneous; whorls 6. Diam. 16, alt. 9 mill.

*Cochin China, Cambodia.*

N. DECUSSATA, Benson. Pl. 30, figs. 59, 60.

Perforate, thin, smoothish, very lightly decussated above, a little shining; light brownish corneous; whorls 6, slowly increasing, suture smooth, margined, periphery subangulate, base flattened. Diam. 25, alt. 11 mill.

*Bengal.*

N. VITRINOIDES, Desh. Pl. 30, figs. 61, 62.

Imperforate, very thin, fragile, vitreous, polished, smooth, translucent; amber-yellow; whorls 5, narrow. Diam., 15 mill.

*Hab. unknown.*

The following Indian species has usually been confounded with this.

N. PSEUDOVITRINOIDES, Nevill. Pl. 30, figs. 63–65.

Perforate, thin, smooth, fragile; light corneous; whorls 6, suture margined. Diam. 23, alt. 12 mill.

*Bengal.*

It is *N. Indica*, Benson (in part), and *N. Vitrinoides* of Pfeiffer, etc., not Deshayes. The animal is ash-colored, the

mantle yellowish, the lobes darker; foot two inches long and a fifth of an inch wide, the under surface pale gray, with a yellowish stripe along each side.

N. PETROSA, Hutton. Pl. 30, figs. 66, 67.

Perforate, thin, fragile, pellucid, vitreous, polished; light brown; whorls 6–7. Diam. 1 inch.

*Mirzapoor, India.*

It is *N. Indica*, Benson (in part), and *Vitrina subcentralis*, Beck.

N. JAINIANA, Godwin-Austen. Pl. 30, figs. 68, 69.

Umbilicated, thin, glassy, smooth, discoidal; dark brown, paler beneath; whorls 6, periphery rounded.

Diam. 20, alt. 6 mill.

*Manbhum, and Parisnath, India.*

N. PLATYCHLAMYS, Blanford. Pl. 30, figs. 70, 71.

Perforate, somewhat thin, smooth, shining, lightly obsoletely striatulate; brownish corneous; whorls 5, suture lightly margined, periphery rounded. Diam. 11, axis 5·5 mill.

*Bombay.*

Eliminated from the group of allied shells usually confounded under the name of *N. Vitrinoides*, Desh.

N. PEDINA, Benson. Pl. 30, fig. 72.

Perforate, very thin, irregularly striatulate, translucent, more shining below; fulvous to light corneous; whorls 6, suture narrowly margined, and very obscurely angulated on the periphery.

Diam. 32, axis 14 mill.

*Bombay* and *Ahmednugger, India.*

N. RESPLENDENS, Phil. Pl. 30, figs. 73–76.

Subperforate, smooth, translucent, thin; yellowish corneous, lighter below; whorls 6½. Diam. 19, alt. 9 mill.

*Burmah, Cambodia.*

*N. expolita*, Desh., is a synonym.

Var. OBESIOR, von Martens. Fig. 76.

Very narrowly perforate; whorls 6–6½, suture narrowly margined with pale violaceous. Diam. 24, alt. 12·5 mill.

*Siam.*

N. SUBCORNEA, Pfr.

Scarcely perforate, thin, smooth, whitish corneous; whorls $7\frac{1}{2}$, suture thread-margined. Diam. 13·6, alt. 6 mill. *Siam.*

Unfigured. The illustration in Conch. Indica is believed by Godwin-Austen to represent a young *N. resplendens*, from which this is distinguished by its more numerous and more closely wound whorls.

N. ATRICOLOR, Austen. Pl. 30, figs. 77, 78; Pl. 31, fig. 79.

Imperforate, smooth, glossy; olivaceous, ochre or umber-brown, more highly colored near the peristome; whorls $6\frac{1}{2}$, periphery rounded, flat at base. Diam. 22·5, alt. axis 9·4 mill.

*N. Cachar Hills, India.*

The animal is black, the extremities of the tentacles paler. The shell varies a little in its dimensions, height of spire, etc., and is closely allied to *N. resplendens*, Phil., perhaps a mere variety of that species.

N. CACHARICA, Austen. Pl. 31, figs. 85, 86.

Subperforate, thin, glassy, striate; pale sienna-brown; whorls 5, suture moderate, base flattened. Diam. 18·8, alt. axis 7 mill.

*Munipur Hills.*

The base is flatter and the apex less rounded than in *N. atricolor.*

Var. GLAUCA, Austen. Fig. 85.

Umbilicus rather open, not striate; color very pale greenish ochre. Diam. 22·8, alt. axis 8 mill.

*Harmutti, Dafla Hills, Assam.*

N. BIRMANA, Pfr. Pl. 31, fig. 80.

Perforate, thin, obscurely radiately striatulate, scarcely shining; light yellowish corneous; whorls $6\frac{1}{2}$, suture thin margined, last whorl obtusely angulate on the periphery.

Diam. 28, alt. axis 12 mill.

*Tenasserim* and *Mergui, Burmah.*

*N. Acerra*, Benson, is a synonym.

N. LUBRICA, Benson. Pl. 31, figs. 81, 82.

Perforate, rather thin, smooth, obsoletely radiately striatulate; orange-brown or olivaceous; whorls $5\frac{1}{2}$, suture impressed; aperture pearly white. Diam. 24, alt. 10 mill.

*Darjiling, Himalayas.*

N. POLITISSIMA, Pfr. Pl. 31, figs. 83, 84.

Perforate, thin, highly polished; greenish corneous or yellowish chestnut; whorls $4\frac{1}{2}$, suture profound, periphery rounded. Diam. 24, alt. 11 mill.

*Ceylon.*

N. JUCUNDA, Pfr. Pl. 31, figs. 87, 88.

Perforation nearly covered, thin, lightly striatulate, shining; brownish corneous; whorls $6\frac{1}{2}$, periphery rounded.
Diam. 17, alt. 9 mill. *Ins. Labuan.*

N. FULVO-CARNEA, Martens. Pl. 31, figs. 89–91.

Perforate, striatulate, with very fine, close, lightly impressed spiral lines, shining; orange-brown above, a little pinkish and lighter below; whorls 5, suture margined, plicatulate, dark violaceous. Diam. 17, alt. 10 mill.

*Manado, Celebes.*

N. EXUL, Theobald. Pl. 31, figs. 92–94.

Very narrowly perforate, thin, shining, incremental striæ lightly impressed; yellowish corneous; whorls 5, suture impressed, periphery obtusely angulated. Diam. 12, alt. 6 mill.

*Andaman Is.*

*N. Andamanensis*, Tryon, is a synonym.

N. MALACCANA, Pfr. Pl. 31, fig. 95.

Perforate, thin, smooth, irregularly pustulate-punctate; corneous chestnut; whorls $5\frac{1}{2}$, suture distinctly margined, periphery rounded. Diam. 15·5, alt. 7 mill.

*Quedo, Malacca.*

N. CONVALLATA, Benson. Pl. 31, figs. 96, 97.

Scarcely perforate, thin, very shining, striatulate, translucent; olivaceous corneous; whorls 6, suture profoundly canaliculate, the channel exteriorly bounded by an acute angle.
Diam. 14, alt. 7 mill.

*Tenasserim, Burmah.*

N. COMPLUVIALIS, Blanford. Pl. 31, figs. 98, 99.

Perforate, thin, smooth, polished, diaphanous, very minutely striate; yellowish corneous; whorls $4\frac{1}{2}$, suture deeply channeled and bounded by an acute angle. Diam. 10, alt. 6·5 mill.

*Mts. Arakan.*

N. AGLAJA, Pfr. Pl. 31, figs. 100–2.

Scarcely perforate, thin, smooth, pellucid, very shining; amber brown; whorls 6, plicatulate at the suture, which is margined by a chestnut line, periphery rounded. Diam. 13, alt. 6 mill.

*Sarawak, Borneo.*

N. VALLICOLA, Pfr. Pl. 31, figs. 3, 4.

Perforate, smooth, pellucid, shining; brownish corneous; whorls 5, suture submargined, periphery rounded.

Diam. 12, alt. 5 mill.

*Koondah Mts., India.*

N. HYPOLEUCA, Blanford. Pl. 31, figs. 5, 6.

Perforate, rather thin, smooth, polished, lightly striate, with microscopic spiral lines, frequently obsolete, brownish corneous, becoming lighter below, whitish around the umbilicus; whorls 5, suture impressed, submargined. Diam. 12, axis 6 mill.

*Akoutong, Pegu.*

N. STEPHOIDES, Stolicz. Pl. 31, figs. 7–9.

Very narrowly perforate, thin, shining, smooth, lightly striatulate; yellowish corneous, becoming whitish around the umbilicus; whorls 6, suture linear. Diam. 11·6, alt. 7 mill.

*Penang Hill.*

N. CARNEOLA, Pfr. Pl. 31, figs. 10, 11.

Narrowly perforate, thin, smooth, pellucid, shining, reddish corneous; whorls 6, slowly increasing, suture channeled, submarginate, last whorl obsoletely angulated on the periphery.

Diam. 11·5, alt. 5 mill.

*Ceylon.*

N. TODARUM, Blanford. Pl. 32, figs. 12–14.

Perforate, thin, shining, striate, fulvous corneous; whorls $5\frac{1}{2}$.

Diam. 14, alt. 8 mill.

*Nilgherri Mts., India.*

Is larger with a higher spire than the succeeding species.

N. PERROTTETI, Pfr. Pl. 32, fig. 15.

Subopenly perforate, rather thin, smooth, shining; corneous; whorls $5\frac{1}{2}$. Diam. 8, alt. 4 mill.

*Nilgherri Mts., India.*

N. VILLIPENSA, Benson. Pl. 32, figs. 16, 17.

Openly perforate, moderately solid, pellucid, corneous, polished; whorls 5, suture scarcely margined. Diam. 8, axis 4 mill.

*Ceylon.*

N. INFANS, Pfr. Pl. 32, fig. 18.

Subperforate, rather solid, smooth, shining; whitish; whorls 5, suture distinctly margined, columella a little thickened, white. Diam. 5·6, alt. 3 mill.

*Borneo*, *Labuan*, *Java*.

*N. adnata*, Mousson, is a synonym.

N. PLANIUSCULA, Hutton. Pl. 32, figs. 19, 20.

Perforate, thin, polished; brownish corneous; whorls 5, periphery rounded. Diam. 3·3, alt. axis 1·7 mill.

*Simla*, *Himalayas*.

N. CORYLUS, Reeve. Pl. 32, fig. 21.

Scarcely perforated, lightly closely costulate-striate; olivaceous chestnut; whorls 5, suture impressed. Diam. 16, alt. 10 mill.

*Ceylon*.

N. ORNATISSIMA, Benson. Pl. 32, fig. 22.

Perforate, closely obliquely costulate-striate above, smooth, polished, obsoletely radiately striate below; yellowish corneous, lighter on the base; whorls 7, suture submargined, periphery obsoletely angulate. Diam. 16, axis 8 mill.

*Pankabari*, near *Darjiling*, *India*.

N. VIDUA, Blanford. Pl. 32, figs. 23, 24.

Imperforate, closely costulate above, smooth and polished beneath; light corneous above, lighter on the base; whorls 8, slowly enlarging, periphery angulated; aperture scarcely white margined within. Diam. 17, axis 9·5 mill.

*Khasi* and *Naga Mts.*

A minor variety has more elevated spire.

Diam. 14, alt. axis 9 mill.

Nevill makes this a variety of *N. climacterica*, Benson (p. 23).

N. PARTITA, Pfr. Pl. 32, figs. 25, 26.

Perforate, somewhat solid, very closely unequally costulate above; fulvous corneous; whorls $5\frac{1}{2}$. Diam. 13, alt. 7 mill.

*Ceylon*.

*N. marcida*, Benson, is a synonym. A larger, thinner variety occurs, of lighter color. Diam. 15, alt. 7·6 mill.

A still larger form, referred here by Nevill, follows.

N. SUBOPACA, Pfr. Pl. 32, fig. 27.

Perforation almost covered, rather solid, arcuately costulate above, radiately striate below, subopaque; light reddish corneous; whorls 6½. Diam. 17, alt. 9 mill. *Ceylon.*

Perhaps identical with the preceding species.

N. SUBCONOIDEA, Pfr. Pl. 32, figs. 28, 29.

Very narrowly perforate, thin, fragile, distinctly costulate above, pellucid; corneous; whorls 5, periphery subangulate. Diam. 10·7, alt. 5·5 mill.

*Ceylon.*

N. PATANÆ, Benson. Pl. 32, figs. 30–32.

Perforate, thin, fragile, radiately rugosely striulate, diaphanous, a little shining; yellowish corneous; whorls 5, the last slightly descending in front, rounded compressed on the periphery. Diam. 9, axis 4 mill.

*Darjiling.*

N. CHOINIX, Benson. Pl. 32, fig. 33.

Perforate, thin, obliquely striulate, with very slight close spiral striæ; brownish corneous above, lighter colored below, translucent; whorls 6, suture submargined, the periphery obtusely subangulate. Diam. 17, axis 8 mill.

*Andaman Is.*

N. SEQUAX, Benson. Pl. 32, figs. 34, 35.

Perforate, rather thin, obliquely striulate, with obsolete slight very close spiral lines, shining, diaphanous; livid olivaceous corneous; whorls 5½, suture with subchanneled margin, last whorl scarcely descending in front, compressed-rounded on the periphery. Diam. 18, axis 7 mill.

*Darjiling and Valley of Rungun.*

N. HAINESI, Pfr. Pl. 32, figs. 36–38.

Perforate, thin, smoothish, diaphanous, a little shining; whorls 7, suture smooth, submargined, periphery subangulate. Diam. 29, alt. 12 mill.

*Siam.*

N. REGULATA, Benson. Pl. 32, figs. 39, 40.

Scarcely perforate, thin, obsoletely obliquely striulate, slightly spirally lined, pellucid, highly polished; brownish corneous; whorls 3½, rapidly increasing, subangulated on the periphery. Diam. 11, alt. 6 mill. *Ceylon.*

N. WOODIANA, Pfr. Pl. 32, figs. 41, 42.

Perforate, thin, smooth, very shining; corneous brown; whorls 6, the last obsoletely angulate on the periphery, base somewhat flattened. Diam. 10, alt. 4·5 mill.

*Ceylon.*

N. MITIUSCULA, Mart. Pl. 32, figs. 43–45.

Narrowly umbilicated, thin, scarcely striate, shining; amber-yellow; whorls $4\frac{1}{2}$, suture white-margined; columellar margin subperpendicular. Diam. 7·5, alt. 4 mill.

*Siam.*

N. RUSSEOLA, Morelet. Pl. 32, figs. 46–48.

Very narrowly perforate, thin, shining, smoothish, diaphanous; corneous brown; whorls 6, submargined, periphery obtusely angulated. Diam. 14, alt. 10 mill.

*Ins. Mayotte.*

N. CEROMATICA, Morelet. Pl. 32, figs. 49, 50.

Very narrowly perforate, rather thin, irregularly faintly striate, shining; brownish corneous; whorls 5, suture superficial, submarginate. Diam. 10·5, alt. 5 mill.

*Ins. Mayotte.*

N. PANSA, Benson. Pl. 32, figs. 51–53.

Perforate, closely obliquely striate, translucent; radiately striulate and shining below; brownish corneous; whorls 6–7, the last subcarinate at the periphery. Diam. 14–19·5, alt. 6·5–10 mill. *Akoutong, Burmah.*

N. SIKRIGALIENSIS, Nevill. Pl. 33, figs. 64, 65.

Distinguished from its close ally *N. pansa* by the depressed spire, almost rounded periphery, etc.

*Sikrigali, in Behar; near Calcutta.*

N. NEBULOSA, Blanford. Pl. 33, figs. 54–56.

Minutely perforate, thin, minutely striate, scarcely polished, corneous; whorls 6, the last subangulate above the periphery; columellar margin vertical. Diam. 11·5, axis 6 mill.

*Akoutong, Burmah.*

N. TENUICULA, H. Adams. Pl. 33, figs. 57–59.

Openly perforate, thin, smoothish, lightly spirally striulate, diaphanous, shining; whorls $4\frac{1}{2}$, suture margined, periphery obsoletely angled. Diam. 6, alt. 4·5 mill. *Sattara, Bombay.*

*N. effulgens*, Blanford, is a synonym.

N. OBLITA, Pfr. Pl. 33, fig. 60.

Perforate, very thin, closely arcuately striate above, pellucid; light corneous; whorls 6, periphery obtusely dentate-carinate.

Diam. 23, alt. 11·5 mill.

*India.*

N. PLICIFERA, Blanford. Pl. 33, figs. 61, 62.

Scarcely perforate, very thin, closely striulate, with very slight close spiral lines; whorls 6, the last slightly obliquely plicate and carinated on the periphery.

Diam. 22, alt. axis 11 mill.

*Khasi Mts., India.*

Described as *N. plicatula* by Blanford, but that name being preoccupied by Martens, it was subsequently changed as above.

N. INDICA, Pfr. Pl. 33, fig. 63.

This species which I have described on p. 42 of the present volume as a Hemiplecta, perhaps belongs to Macrochlamys.

N. LONGICAUDA, Austen. Pl. 33, figs. 66–68.

Smooth, microscopically striate, narrowly perforate; horny-brown; whorls 5½. Diam. 5·6, alt. axis 3·1 mill.

*N. Kkasi hills, N. Jaintia, North Cachar, India.*

N. NENGLOENSIS, Austen. Pl. 33, fig. 69.

Perforate, smooth, minutely, distantly, undulately decussately ribbed; pale olivaceous; whorls 6, periphery slightly angular.

Diam. 5·3, alt. axis 3·1 mill.

*Nenglo, Naga Hills, Munipur, India.*

More globose, the spire more convex than *N. longicauda;* the aperture differs also in form, and the columellar margin is stronger.

N. POONGEE, Theobald. Pl. 33. fig. 70.

Perforate, thin, tumid; brownish corneous; whorls 6½.

Diam. 6·25, alt. 5 mill.

*Near Moulmein, Burmah.*

N. KOLIAENSIS, Austen. Pl. 33, fig. 71.

Perforation covered, smooth, glassy, thin; pale horny; whorls 6. Diam. 4·1, alt. axis 2·3 mill.

*Assam.*

N. Roberti, Austen. Pl. 33, fig. 72.

Narrowly perforate, showing growth-lines, smooth, polished; pale horny brown; whorls 5½. Diam. 4·1, alt. axis 2 mill.

*Naga Hills*, 6777 ft. alt.

N. Dorani, Austen. Pl. 33, fig. 73.

Narrowly perforate, smooth, obsoletely striate; pale umber-brown; whorls 5. Diam. 3·3, alt. axis 2·3 mill.

*N. Khasi Hills, India.*

N. Tanirensis, Austen. Pl. 33, fig. 74.

Perforation concealed, smooth, polished; pale sienna-brown; whorls 4½. Diam. 2·8, alt. axis 1·5 mill.

*Tanir Peak*, 4400 ft., *Dafla Hills, India.*

N. rusticula, Austen. Pl. 33, fig. 75.

Narrowly perforate, rather solid, subangular, smooth, shining; sienna brown; whorls 4. Diam. 2·3, alt. axis 1 mill.

*North Khasi Hills, India.*

N. Darjilingensis, Austen. Pl. 33, fig. 76.

Perforation hidden, solid, smooth, shining, distantly faintly striate; pale horny white; whorls 5, closely wound.

Diam. 1·7, alt. axis ·9 mill.

*Darjiling, India.*

Its systematic position is very doubtful.

N. umbraticola, Austen. Pl. 33, fig. 77.

Perforation concealed, very minutely regularly striated; pale olive-brown; whorls 4½. Diam. 4·3, alt. axis 2·2 mill.

*North Cachar* and *Naga Hills* (8376 feet), *India.*

N. Kandiensis, Nevill. Pl. 33, fig. 78.

Perforate, distantly regularly finely striate, the surface much decomposed in patches, giving the shell a mottled appearance; dark chestnut-brown; whorls 5, periphery rounded.

Diam. 4·1, alt. axis 2·3 mill.

*Kandy, Ceylon.*

N. pacata, Austen. Pl. 34, fig. 79.

Thin, smooth, glassy, distantly, regularly striated; sienna-brown; whorls 4½, not fully grown. Diam. 2·8, alt. 1·3 mill.

*Lhota, Naga Hills, India.*

N. FACETA, Austen. Pl. 84, fig. 80.

Scarcely perforate, finely, closely, regularly sculptured; ochraceous; whorls 4. Diam. 2·7, alt. axis 1·4 mill.

*Dikrang Valley, Dafla Hills, India.*

Somewhat like *N. umbraticola*, but much smaller and the whorls not so rounded and globose.

N. ERRATA, Austen. Pl. 34, fig. 81.

Thin, transparent, closely, very finely striate under a lens; pale sienna brown; whorls 4½, suture shallow.

Diam. 2·4, alt. axis 1·1 mill.

*Lhota, Naga Hills.*

N. ORIGINARIA, Austen. Pl. 34, fig. 82.

Perforate, rather solid, glossy, finely striate; sienna brown; whorls 4½, the last obsoletely subangulate.

Diam. 2·5, alt. axis 1·5 mill. *Munipur, India.*

N. SATA, Austen. Pl. 34, fig. 83.

Microscopically decussated, shining; pale olivaceous gray, black mottled; whorls 4, suture impressed.

Diam. 2, alt. axis ·8 mill.

*Shengor Peak* (6706 feet), *Dafla Hills, India.*

N. ANONÆ, Austen. Pl. 34, fig. 84.

Narrowly perforate, covered with a rough limy deposit, indistinctly spirally striate, with a few growth-lines; umber brown; whorls 4, suture shallow. Diam. 1·5, alt. ·08 mill.

*Calcutta* (found on fruit of the custard-apple).

N. SHENGORENSIS, Austen. Pl. 34, fig. 85.

Narrowly perforate, glossy, spirally striate; olivaceous brown; whorls 4, suture shallow. Diam. 11·2, alt. axis 4·3 mill.

*Shengor Peak, Dafla Hills, India.*

Not fully grown.

N. HARDWICKEI, Austen. Pl. 34, figs. 86–88.

Narrowly perforate, regularly finely spirally striate; dull ochraceous brown, with a greenish tint; whorls 6, suture moderately impressed. Diam. 16·2, alt. axis 7 mill.

*Calcutta, Assam, etc.*

It is *N. Sylhetensis*, Austen MS. I figure several varieties.

N. MARSHALLI, Tryon. Pl. 34, fig. 89.

Perforate, very thin, flattened on base; with deep regular spiral striæ crossed by numerous fine growth-lines; dark horny; whorls 7, suture moderate, periphery rounding suddenly.

Diam. 23, alt. axis 8 mill.

*Lhota, Naga Hills, India.*

Described by Austen as *N. Lhotaensis*, a specific name already used by him for one of the group Kaliella. I change the name as above in recognition of the very efficient aid rendered me in my work by Mr. William B. Marshall.

N. OPIPARUS, Austen. Pl. 34, fig. 90.

Perforate, rather solid, roughly, coarsely, unevenly spirally striate, with minute, irregular growth-lines; dull ochre-color, with a pale brown band bordering the peristome; whorls 6, the last well rounded on the periphery and much swollen.

Diam. 16·7, alt. axis 7 mill.

*Darjiling, India.*

N. KALA, Austen. Pl. 34, fig. 91.

Narrowly perforate, thin, transparent, glossy, finely regularly spirally striate; very pale ashy ochre; whorls 5.

Diam. 9, alt. axis 3·5 mill.

*Damsang Peak, Daling Hills, Western Bhutan.*

N. GODWINI, Tryon. Pl. 34, fig. 92.

Perforate, smooth, transparent, no sculpture; color horny brown, with an olive tinge; whorls 5.

Diam. 12, alt. axis 4·7 mill.

*Koliaghur, Brahmaputra River, Assam.*

I have substituted the above name for *N. Koliaensis*, Godwin-Austen (Shells of India, Pt. 4, not Pt. 3); this author having inadvertently used the same specific name for two distinct forms.

N. CASTANEO-LABIATA, Austen. Pl. 34, fig. 93.

Perforate, flat below, shining, with fine growth-lines, translucent, moderately solid, rather coarsely spirally striate; pale horny brown, with a pale ochraceous more or less wide margin at the peristome; whorls 6, the last somewhat swollen below.

Diam 13·2–15·8, alt. axis 6–6·8 mill.

*Asalu, Burrail Range, Assam.*

N. DALINGENSIS, Austen. Pl. 34, fig. 94.

Perforation somewhat concealed, sculpture microscopically broken up by decussation; dark umber-brown, with a pinkish broad margin bordering the peristome; whorls 6.

Diam. 24·2, alt. axis 10·5 mill.

*Damsang, Daling Hills, Western Bhutan.*

N. BILINEATA, Austen. Pl. 34, figs. 95, 96.

Very thin, transparent, greenish yellow; whorls 5.

Diam. 11 mill.

*Tanir Lampa Ridge*, 4000 feet.

The living shell appears mottled on the upper surface with black and white from the body of the animal shining through it. The animal has a pale ochraceous foot, the tentacles black, the color extending in parallel lines on the neck, the upper part of the foot also with two parallel black lines.

N. HEBESCENS, Blanford. Pl. 34, fig. 97.

Scarcely perforated, yellowish or fulvous, thin, dull, with very close oblique microscopic striæ above, base radiately striate and more polished; whorls $5\frac{1}{2}$, suture profound, periphery obtusely subangulate. Diam. 15, alt. 8·5 mill.

*Annamullay Hills, Central India.*

N. LIXA, Blanford. Pl. 35, figs. 99, 100.

Covered perforate, rather thin, fulvous, closely microscopically striate above, smooth and polished below; whorls $5\frac{1}{2}$, periphery obsoletely subangulate. Diam. 13·5, alt. axis 9·5 mill.

*Annamullay Hills, Central India.*

N. PRONA, Nevill. Pl. 34, fig. 98.

Perforate, the sculpture very fine, broken up into close-set papillate dots; pale sienna-brown, a darker conspicuous band of the same color near the aperture, with ochraceous growth-bands at intervals; whorls 6, periphery rounded.

Diam. 18·2, alt. axis 7 mill.

*Masuri, N. W. Himalayas.*

*N. Masuriensis*, Austen, is a synonym.

N. MOLECULA, Benson. Pl. 35, figs. 25, 26.

Narrowly perforate, thin, obsoletely radiately striate, shining; brownish or chestnut corneous; whorls 5½, suture submargined, periphery rounded. Diam. scarcely 5, axis 3 mill.

*Rangoon, Burmah.*

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N. FRAGILIS, Hutton. (Unfigured) *Kirmalliah.*
N. GLOBOSA, Austen. (Unfigured.) *Summit of Toruputu Peak.*
N. INFAUSTA, Blanford. (Unfigured.) *Annamullay Hills.*

*** *Chinese Species.*

N. DAVIDI, Deshayes. Pl. 35, figs. 1, 2.

Very narrowly perforate, irregularly thinly striate; light reddish brown; whorls 4, rapidly enlarging.

Diam. 10, alt. 6 mill.

*Moupin, Eastern Thibet; near Pekin, China.*

*N. Sinica*, Martens, is a synonym.

N. SINENSIS, Heude. Pl. 35, figs. 3–5.

Perforate, striatulate, very shining; yellowish amber-color; whorls 5½, suture a little flattened. Diam. 16·5, alt. 10 mill.

*China.*

N. CINCTA, Mollendorff. Pl. 35, figs. 6, 7.

Narrowly perforate, slightly striated and crossed by still slighter spiral lines, shining; yellowish corneous, lighter colored below; whorls 6½. Diam. 22, alt. 11·5 mill.

*Isl. of Hainan, Hongkong, China.*

N. VESTA, Pfr. Pl. 35, fig. 8.

Scarcely perforate, thin, smooth, very shining, pellucid, greenish corneous; whorls 5½, suture margined.

Diam. 15·5, alt. 7·5 mill. *Isl. Formosa.*

N. MOUPINIANA, Desh. Pl. 35, figs. 11, 12.

Imperforate, thin, pellucid, vitreous, smooth, shining; light greenish yellow; whorls 4, suture a little depressed.

Diam. 8, alt. 5 mill. *Moupin, Eastern Thibet.*

N. PLICATILIS, Desh. Pl. 35, figs. 9, 10.

Perforate, thin, pellucid, irregularly plicate, plainer at the suture; pinkish brown; whorls 4; peristome slightly expanded.

Diam. 8, alt. 6 mill. *Moupin, Eastern Thibet.*

This, together with *N. Moupiniana* and *N. Davidi*, Desh.,

constitutes a new group described by Mr. C. F. Ancey under the name *Armandia;* whether they are members of the Zonitidæ or true helices remains uncertain.

N. DISCUS, Möllendorff. Pl. 35, figs. 13, 14.

Narrowly perforate, thin, pellucid, shining; very slightly striulate and spirally lineate; light fulvous; whorls $5\frac{1}{2}$, suture obsoletely crenulated. Diam. 4·25, alt. 2·33 mill.

*Hongkong.*

N. EASTLAKEANA, Möllendorff. Pl. 35, figs. 15, 16.

Very narrowly perforate, irregularly arcuately striate above, smoother and shining below, thin, pellucid, yellowish corneous; whorls 6, periphery sharply angulated.

Diam. 15·5, alt. 8 mill.

*Province of Fudshien, China.*

I place this species here in deference to the indications of its author; to me, the figure appears to ally it to Trochonanina.

N. RATHOUISII, Heude. Pl. 35, figs. 17, 18.

Scarcely perforate, striated above, less distinctly so below, diaphanous; whorls 7, suture profound, last whorl with a peripheral thread-like carina. Diam. 6, alt. 3·5 mill.

*Yang-tcheou fou, China.*

This, like the preceding species, recalls Trochonanina.

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N. SUPERLITA, Morelet (unfigured). *Whampoa and Canton.*
N. NITIDISSIMA, Möllendorff (unfigured). *Ins. Hainan.*
N. JAPONICA, Möllendorff (unfigured). *Japan.*

*** *Species of Philippines, Australia, etc.*

N. HENRICI, Semper. Pl. 35, figs. 19–21.

Imperforate, very slightly, minutely, spirally striate, thin, diaphanous; orange-brown; whorls 5, periphery obtusely angulated. Diam. 19·5, alt. 11 mill.

*Ins. Luzon.*

N. CREBRISTRIATA, Semper. Pl. 35, figs. 22–24.

Very narrowly perforate, striulate, light yellowish brown, becoming lighter below; whorls $5\frac{1}{4}$, suture submargined.

Diam. 22, alt. 11 mill.

*Is. of Basilan and Mindanao.*

N. CERATODES, Pfr. Pl. 35, figs. 27, 28.

Subperforate, thin, minutely striulate, a little shining, pellucid; corneous; whorls 5. Diam. 16·5, alt. 9 mill.

*Ins. Luzon and Mindoro.*

*Vitrina centralis*, Beck, is a synonym.

N. BISLINGENSIS, Semper. Pl. 35, figs. 29–31.

Scarcely perforate, thin, striulate, shining; orange-brown; whorls 4–4½, suture margined. Diam. 10·5, alt. 6 mill.

*Ins. Mindanao.*

N. SARCODES, Reeve. Pl. 35, fig. 32.

Scarcely umbilicated, very thin, smooth, fragile, yellowish corneous, pellucid; whorls 4, suture margined.

*Philippines.*

N. SUBFUSCA, Beck. Pl. 35, figs. 33–35.

Subperforate, thin, lightly striulate, pellucid; brownish corneous; whorls 4½, suture submargined. Diam. 11·5, alt. 6·3 mill.

*Sorsogon, Ins. Luzon.*

N. EXCENTRICA, Pfr. Pl. 35, figs. 36, 37.

Subperforate, excentrically subcostulate, thin, shining, yellowish; whorls 4, flat above, inflated below, periphery acutely carinated. Diam. 18, alt. 8·5 mill.

*Ins. Siguijor.*

N. CUMULUS, Pfr. Pl. 35, fig. 38.

Perforate, thin, lightly striulate, shining, fulvous corneous; whorls 5½, suture submargined, periphery subangulate. Diam. 10, alt. 5 mill.

*Manning River, Eastern Australia.*

N. MARMORATA, Cox. Pl. 35, figs. 39, 40.

Perforate, smooth, very shining; brownish corneous; whorls 6. Diam. 10, alt. 5·5 mill.

*Port Curtis, etc., Australia.*

N. VILLARIS, Pfr. Pl. 35, fig. 41.

Perforate, rather thin, smooth, shining; whitish corneous; whorls 5½, suture margined. Diam. 10·5, alt. 5·5 mill.

*Cape York, etc., Australia.*

*N. Kreffti*, Cox, is a synonym.

N. KEPPELLI, Pfr. Pl. 35, fig. 42.

Perforation subcovered, thin, smooth, very lightly minutely striulate, shining, pellucid, fulvous corneous; whorls $5\frac{1}{2}$, suture simple, periphery rounded. Diam. 16, alt. 8 mill.

*S. Cristoval, Solomon Is.*

*** *Mauritian Species.*

N. VIRGINIA, Morelet. Pl. 35, figs. 43–45.

Narrowly perforate, substriate, hyaline; whitish or light fulvous, the base greenish fulvous; whorls 6, suture margined, periphery obsoletely angulated. Diam. 9, alt. 5 mill.

*Mauritius.*

N. NITELLA, Morelet. Pl. 35, figs. 46–48.

Very narrowly perforate, thin, pellucid, shining, smooth; light fulvous; whorls 5, suture narrowly margined.

Diam. 9, alt. 3 mill. *Mauritius.*

N. MAILLARDI, Desh. Pl. 36, figs. 49, 50.

Narrowly perforate, thin, fragile, shining; yellowish; whorls 5.

Diam. 5, alt. 3 mill. *Ins. Bourbon.*

N. MINIMA, H. Adams. Pl. 36, fig. 51.

Subperforate, thin, scarcely striulate, pellucid, shining; whorls 4, suture profound. Diam. 1·3, alt. ·5 mill.

*Port Louis, Mauritius.*

N. PRÆTUMIDA, Ferussac. Pl. 36, figs. 52–54.

Very narrowly perforated, thin, shining, diaphanous, smooth; yellowish corneous; whorls 6, suture channeled, periphery obscurely lined. Diam. 9, alt. 6·5 mill.

*Ins. Bourbon.*

N. GEOFFREYI, H. Adams. Pl. 36, figs. 55, 56.

Minutely perforate, thin, scarcely shining, lightly and very minutely spirally striulate, irregularly obsoletely longitudinally striate; olivaceous fulvous; whorls 6, suture submargined, periphery subangulate. Diam. 9, alt. 5 mill.

*Ins. Bourbon.*

N. PROLETARIA, Morelet. Pl. 36, figs. 57–59.

Narrowly perforate, thin, scarcely striulate, semidiaphanous, more shining below; yellowish corneous; whorls 6, the last carinate. Diam. 10, alt. 6 mill. *Mauritius.*

Morelet suspects that *N. Geoffreyi* is a synonym of his species.

N. POWERI, H. Adams. Pl. 36, fig. 60.

Narrowly perforate, thin, subpellucid, very closely lightly decussated, somewhat shining; greenish corneous; whorls $4\frac{1}{2}$, suture margined, the last subangulate. Diam. 8, alt. 3·5 mill.

*Peter Botte Mt., Mauritius.*

N. PERLUCIDA, H. Adams. Pl. 36, fig. 61.

Narrowly perforate, thin, smooth, pellucid, shining; yellowish green; whorls $5\frac{1}{2}$, suture margined. Diam. 6, alt. 4 mill.

*Mauritius.*

N. MICA, Morelet. Pl. 36, fig. 66.

Perforate, thin, smooth; brownish corneous; whorls 5. Diam. 4, alt. 3 mill.

_____ *Anjouin, Comoro Islands.*

N. CORDEMOYI, Nevill (unfigured). *Ins. Bourbon.*

Section MACROCERAS, Semper, 1870.

N. SPECTABILIS, Pfr. Pl. 36, figs. 62–65.

Subperforate, rather solid, very shining; yellowish corneous, with a chestnut or chocolate-colored band; whorls $5\frac{1}{2}$, the last angulated below the band. Diam. 17, alt. 10 mill.

*Ins. Samar, Philippines.*

Var. FUSCO-SUCCINEA, Beck.

Unicolored, greenish yellow. *Ins. Leyte, Philippines.*

Section BENSONIA, Pfr., 1855.

N. LABIATA, Pfr. Pl. 36, fig. 67.

Openly perforate, thin, obsoletely decussated above, base smooth, shining; fulvous above, lighter-colored below, peristome chestnut, callously margined within. Diam. 40, alt. 20 mill.

*Landour.*

The color varies to whitish, unicolored or with an obscure darker peripheral band. It is *N. Bensoni*, Hutton MS., and may be identical with *N. monticola*, Hutton, as surmised by Theobald and others.

N. MONTICOLA, Hutton. Pl. 36, fig. 68.

Perforate, striate, very minutely decussated by spiral lines; yellowish corneous, occasionally strigate with chestnut, periphery chestnut-colored, labiate with white within; whorls 6, the last obsoletely angulated on the periphery.

Diam. 36, alt. 18 mill. *Landour; Mahassu, Himalayas.*

Var. Murriensis, Nevill.

Perforation wider, whorls more compressed, aperture more vertical, apical whorls peculiarly abruptly raised.

*Changligali*, near *Murree* (1 specimen).

N. Angelica, Pfr. Pl. 36, figs. 69–71.

Perforate, thin, rather closely striated above, base smoother, pellucid, shining; greenish corneous, with an occasional varix of chestnut-color margined with yellowish, suture narrowly white-margined, peristome chestnut-colored, with a white marginal callus within; whorls 7.

*Punjaub, India.*

N. Jacquemonti, Martens. Pl. 36, figs. 72, 73.

Very narrowly perforate, striulate, subdiaphanous, a little shining; white, with a narrow chestnut band above the periphery and showing on the spire; whorls $5\frac{1}{2}$, periphery rounded. Diam. 17, alt. 10 mill.

*Himalaya region, India.*

N. Wynnei, Blanford. Pl. 36, figs. 74, 75.

Said to differ from the preceding species, in the peristome being sharp, not callus-margined within, its basal margin straighter, the aperture more oblique. It is evidently very closely allied to that species. Diam. 19, axis 9·5 mill.

*Murree, Western Himalayas.*

N. Orobia, Benson. Pl. 36, fig. 76.

Perforate, rather thin, diaphanous, obliquely plicatulate above, decussated by impressed spiral lines, lightly radiately striated below; yellowish corneous, with a peripheral chestnut band, and an occasional chestnut and yellowish strigation, base lighter colored, peristome white-lipped within; whorls $5\frac{1}{2}$, periphery very obsoletely angulated. Diam. 36, alt. 20 mill.

*Darjiling, Himalayas.*

N. convexa, Reeve. Pl. 36, fig. 77.

Perforate, striated, very minutely reticulated with close-set concentric lines; horny brown, lip chestnut-colored, with a callous margin of white within; whorls 6, periphery obsoletely subangulate. Diam. 18, alt. 10 mill.

*Mahassa, Himalayas.*

Has been considered a variety of *N. monticola*, but is a much smaller shell of somewhat different form.

N. TUGURIUM, Benson. Pl. 36, fig. 78.

Perforate, thin, radiately striate and distantly rugate, lightly decussated by spiral lines, barely shining, base smoothish; greenish fulvous, aperture whitish, sublabiate within the margin; whorls 6, periphery subangulate. Diam. 21, alt. 11·5 mill.

*Darjiling.*

N. SPLENDENS, Hutton. Pl. 36, figs. 79, 80.

Very narrowly perforate, thin, shining, striæ most apparent at the suture, with very minute spiral lines; chestnut-corneous, base lighter; aperture remotely callous-labiate within; whorls $6\frac{1}{2}$. Diam. 15, alt. 5·5 mill.

*Mahassu, Himalayas.*

N. PETASUS, Benson. Pl. 36, figs. 81, 82.

Perforate, translucent, striulate, shining; corneous; the lip callously white-margined within; whorls 6, suture slightly channeled. Diam. 10, alt. axis 4 mill.

*Tenasserim, Burmah.*

A variety has a more convex spire.

N. ASPIDES, Benson. Pl. 36, figs. 83–85.

Perforation nearly covered, scarcely striulate, smooth, polished, subdiaphanous; corneous, whitish on the base; whorls 6, suture submargined, aperture with white marginal callus within. Diam. 11, axis 5 mill.

*Burmah.*

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N. JAMUENSIS, Theobald (unfigured). *Kashmir.*

N. AFRA, Pfr. (unfigured). *Cape of Good Hope.*

Section SOPHINA, Benson, 1859.

N. CALIAS, Benson. Pl. 37, figs, 86–90.

Umbilicated, rather solid, polished, growth-lines minute and close, below the suture slightly channeled and with some spiral striæ; light corneous, lighter below; inner lip white; columella medially subdenticulate; whorls $4\frac{1}{2}$–$5\frac{1}{2}$. Diam. 13·5, alt. 8·5 mill.

*Moulmein, Burmah.*

Var. DISCOIDALIS, Stoliczka. Pl. 37, fig. 88.

Umbilicated, thin, pellucid; light corneous, chestnut-banded above the periphery; whorls 5–$5\frac{1}{2}$, suture slightly channeled. Diam. 10·5, alt. 5·5 mill.

Var. SCHISTOSTELIS, Benson. Pl. 37, figs. 89–90.

Umbilicated, thin, irregularly striulate, very closely spirally striate above, translucent, light corneous, shining; whorls $4\frac{1}{2}$–$5\frac{1}{2}$, suture margined. Diam. 11–16, axis 6·5–8·5 mill.

N. FORABILIS, Benson. Pl. 37, figs. 91, 92.

Umbilicated, thin, corneous, shining, with thread-like very close incremental striæ, and faint or obsolete spiral lines on the upper whorls; whorls 5–$5\frac{1}{2}$, suture scarcely channeled. Diam. 8·8, alt. 5·8 mill.

*Damotha* near *Moulmein*, *Burmah*.

Perhaps this and the next species are only varieties of *N. Calias*.

N. CONJUNGENS, Stoliczka. Pl. 37, figs. 93, 94.

Moderately umbilicated, thin, semipellucid, with minute incremental and spiral striæ, sometimes obsolete; corneous, nearly hyaline in young specimens; whorls 5–$5\frac{1}{2}$, suture scarcely channeled, umbilical carina obtuse, indistinct, sometimes nearly obsolete. Diam. 11·6, alt. 7·2 mill.

Near *Moulmein*, *Burmah*.

Section EURYPUS, Semper, 1870.

N. CASCA, Gould. Pl. 37, figs. 96–98.

Narrowly perforate, rather solid, smooth, shining, brownish flesh-color, suture chestnut margined; whorls $5\frac{1}{2}$, the last obsoletely angulated. Diam. 18, alt. 10 mill.

*Viti Islands*.

*Helix calva*, Gould, non Lowe, and *H. Vitiensis*, Pfr., are synonyms.

N. SIMILIS, Semper. Pl. 37, fig. 99.

Perforate, solid, striulate; brownish corneous, without sutural band, scarcely shining; whorls $5\frac{1}{2}$, the last very obsoletely angulated. Diam. 17, alt. 10·25 mill.

*Viti Islands*.

It has been confused with *N. casca*, Gould, from which it is distinguished by the want of the brown sutural band, the less shining surface, the more globose form, and scarcely apparent angulation. I think it merely a variety of *N. casca*.

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N. TREASURYENSIS, Tryon. Pl. 37, figs. 100–2.

Narrowly perforate, thin, transparent, very glossy, with very faint growth-lines; pale brownish horn-color above, whitish towards the umbilicus; whorls 4–5, suture slightly margined, periphery rounded. Diam. 14, alt. 9 mill.

*Treasury Island, Solomon Archipelago.*

Whorls increasing more slowly than in *N. casca*, Gould. Described by Mr. E. A. Smith as *N. nitidissima*, a name preoccupied by Mollendorff.

N. SOLIDIUSCULA, E. A. Smith. Pl. 37, figs. 3–5.

Very narrowly perforate, somewhat solid, a little glossy above, more glossy below, upper surface strongly arcuately obliquely sculptured; dark chestnut-brown, paler beneath, the umbilical region becoming almost white; whorls $6\frac{1}{2}$, suture rather deep, periphery obtusely angulated. Diam. 18, alt. 12 mill.

*Santa Ana Islands, Solomon Archipelago.*

Living generally on the trunks of cocoa-nut palms.—Guppy. Well distinguished by its sculpture and comparative solidity.

Section DURGELLA (Blanford), Stoliczka, 1870.

N. LEVICULA, Benson. Pl. 37, figs. 8, 9.

Very narrowly perforate, thin, polished, subdiaphanous, obliquely striulate, scarcely decussated by slight obsolete spiral striæ, yellowish corneous; whorls 3, rapidly increasing, suture margined, periphery subangulate. Diam. 7, axis 3·5 mill.

*Phie Than, Burmah.*

Looks like a Vitrina, but is perforate.

N. KHASIACA, Austen. Pl. 37, figs. 6, 7.

Thin, shining, smooth, with close fine growth-lines; pale ochraceous olive; whorls 3, rapidly increasing.

Diam. 7, alt. axis 2 mill.

*West Khasi Hills.*

N. HONESTA, Gould. Pl. 37, fig. 95, 10–12.

Subperforate, thin, shining, straw-colored or whitish; whorls 5, suture marginate, periphery obtusely angled, base with slight spiral lines. Diam. 13, alt. 7·5 mill.[1] *Burmah.*

The shell varies, according to Stoliczka, some specimens having rounded periphery. Var. described below. It is scarcely

a member of this group, where it is placed by Pfeiffer, and is perhaps a Macrochlamys.

Var. ANDERSONIANA, Nevill. Figs. 10–12.

Less depressed than the type, periphery scarcely angulated.

*Khasi and Naga Hills, East Cachar, Ava, etc.*

N. SHISHA, Austen. Pl. 37, figs. 13, 14.

Imperforate, very thin, fragile, transparent, finely costate above, smooth below; light greenish corneous; whorls 5, the periphery sharply angulated. Diam. 15, alt. 7·5 mill.

*Khasi and Naga Hills, India.*

Appears to be more nearly related to Trochonanina than to this group, of which it is made a member by Godwin-Austen.

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N. MINUTA, Austen. As Helicarion Manual, I, 182, t. 42, f. 29.

N. CHRISTIANÆ, Theobald. As Helicarion, Manual I, 176, t. 40, f. 31, 32.

N. ASSAMICA, Austen (unfigured). *Assam.*

Section MICROCYSTIS, Beck, 1837.

A. *Imperforate.*

*a. Not carinate.*

N. GLABERRIMA, Semper. Pl. 37, figs. 15–17.

Imperforate, thin, scarcely striulate, very shining; bright brown; whorls 5½–6, suture submargined, last whorl subangulate. Diam. 4·5, alt. 2·5 mill.

*Ins. Luzon, Philippines.*

N. ELECTRINA, Jacq. Pl. 37, figs. 18–20.

Imperforate, smooth, shining; rufous, irregularly radiate with lighter color; whorls 4½. Diam. 9·5 mill.

*Ins. Guam, Moluccas.*

N. ADAMSI, Pfr. Pl. 37, figs. 22–25.

Imperforate, lightly striulate, opaque, glossy; yellowish fulvous or yellowish white, unicolored or variously banded and radiated with darker fulvous or chestnut; whorls 3½, base subplanulate. Diam. 11, alt. 6 mill.

*Ins. Pitcairn and Opara.*

It is *N. ornatella*, Pfr., not Beck, *N. realis*, Muhlf., and *N. filiceti*, Beck.

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N. MARQUESANA, Pease. Pl. 37, fig. 26.

Imperforate, thin, a little shining, slightly radiately striate; yellowish above, with a single chestnut band, somewhat greenish below; whorls 5. Diam. 9, alt. 7 mill.

*Marquesas Is.*

N. PERPOLITA, Mousson. Pl. 37, fig. 27.

Imperforate, scarcely striulate, polished, pellucid; amber-brown; whorls 4½, suture thinly margined. Diam. 7, alt. 4·8 mill.

*Viti Islands.*

Var. SOLIDA, Mousson.

Stronger, a little more globose, columellar margin callous within, subnodulous. Diam. 8, alt. 5 mill.

N. JACKSONIENSIS, Gray. Pl. 37, fig. 21.

Imperforate, solid, slightly arcuately striated, shining; reddish fulvous, radiated with a darker shade; whorls 5, suture margined. Diam. 7·6, alt. 3·6 mill.

*Port Jackson, Australia.*

N. BRUNNEA, Anton. Pl. 38, fig. 50.

Imperforate, very shining; dark fulvous with scattered white dots above; whorls 4½. Diam. 6, alt. 3·3 mill.

*Pitcairn's Isl.*

*N. glandula*, Beck, is a synonym.

N. VERTICILLATA, Pease. Pl. 38, figs. 28–30.

Imperforate, thin, fragile, shining; light brownish corneous; whorls 5. Diam. 6, alt. 4 mill.

*Moorea, Society Isles.*

N. SUBTILIS, Anton. Pl. 38, fig. 49.

Imperforate, thin, shining; light corneous, suture sometimes chestnut margined; whorls 4½–5. Diam. 6, alt. 3·3 mill.

*Ins. Rurutu, Oheatora, etc.*

*N. vitrinella*, Beck, is a synonym.

N. PUNCTIFERA, Garrett.

Imperforate, thin, smooth, shining, transparent; light brownish horn color, dotted with white; whorls 4½.

Diam. 4·5, alt. 3 mill.

*Rurutu, Austral Islands.*

Smaller and darker colored than *N. subtilis*. Unfigured.

N. MARGARITA, Jacq. Pl. 38, figs. 37–39, 35, 36.

Imperforate, smooth, pearly; whorls 5. Diam. 4 mill.

*Ins. Vavao.*

I think that *N. Vavauensis*, Baird (figs. 35, 36), will prove to be a synonym, or perhaps a larger variety of this species.

N. CALLIFERA, Pfr. Pl. 38, figs. 32–34.

Imperforate, thin, smooth, shining, pellucid; fulvous corneous; whorls 5½, the last a little angulate on the periphery, where it bears a white line. Diam. 7, alt. 3 mill.

*Marquesas.*

N. LOWI, Issel. Pl. 38, figs. 43–45.

Imperforate, fragile, pellucid, very shining, slightly obliquely striatulate; yellowish; whorls 4, suture slightly margined. Diam. 3·5, alt. 2·25 mill.

*Borneo.*

N. ORBIS, Beck. Pl. 38, fig. 31.

Imperforate, smooth, shining, pellucid; greenish yellow; whorls 5–6, suture submargined. Diam. 9·3, alt. 3·5 mill.

*Ins. Opara.*

*N. planulata*, Anton, is a synonym.

N. EXÆQUATA, Gould. Pl. 38, figs. 40–42.

Imperforate, thin, smooth, shining, pellucid; reddish brown; whorls 6, suture margined, periphery obtusely angulated. Diam. 7, alt. 3 mill.

*Sandwich Isles.*

*N. discus* and *N. obtusangula* of Pfeiffer are synonyms. A large variety is said to have 7½ whorls. Diam. 10·3, alt. 4·5 mill.

N. NEMATOPHORA, Pfr. Pl. 38, fig. 46.

Imperforate, thin, with rather close thread-like striæ, diaphanous, not shining; yellowish corneous, with zigzag or tessellated chestnut markings; whorls 5½.

*Solomon's Islands.*

N. SIMILLIMA, Pease.

Imperforate, thin, fragile, semipellucid, glabrous, shining; yellowish horn color, the suture white lined, the impressed umbilical region white; whorls 4. Diam. 10, alt. 4·5 mill.

*Raiatea, Society Islands.*

N. TAHAENSIS, Tryon. Pl. 38, figs, 56–58.

Imperforate, thin, smooth, subpellucid, very glossy; irregularly dotted and lineated with white radiating lines; whorls 5.

Diam. 10, alt. 6 mill.

*Tahaa, Society Islands.*

More solid, darker colored, with flatter whorls and more elevated spire than the preceding species, distinguished also by the scratch-like white markings. Described by Mr. Garrett as *N. scalpta*, preoccupied by Dr. von Martens.

*b. Periphery angulated.*

N. ORNATELLA, Beck. Pl. 38, figs. 59–61.

Imperforate, thin, smooth, glossy, pellucid; yellowish white, yellowish or fulvous, unicolored, or with a narrow chestnut band above the periphery, continuing on the spire, base rarely purplish; whorls $4\frac{1}{2}$, the periphery angulated.

Diam. 11·3, alt. 7 mill.

*Pitcairn's Island.*

Distinguished from *N. Adamsi*, Pfr. (p. 112), by its more flattened, more numerous whorls, more convex base, carinate periphery, pellucid shell, etc.; still I suspect that the two species must be merged in one, as some of the specimens before me are intermediate in character.

*N. realis*, Muhlf., is perhaps a synonym.

Var. AMŒNULA, Beck.

Flatter, greenish yellow. *Ins. Opara.*

N. MISELLA, Fér. Pl. 38, figs. 47, 48.

Imperforate, thin, very obsoletely striulate, shining, pellucid; yellowish corneous; whorls $5\frac{1}{2}$, periphery angulated.

Diam. 8, alt. 4 mill.

*Guam, Moluccas; Sandwich Is.?*

N. RADIANS, Pfr. Pl. 38, figs. 51, 52.

Imperforate, thin, smooth, very shining, pellucid; corneous, irregularly radiately strigate with white; whorls $4\frac{1}{2}$, suture submarginate, periphery subangulated. Diam. 9, alt. 4 mill.

*Rarotonga; Tahiti? Port Jackson, Australia?*

The latter locality is very doubtful.

N. PERTENUIS, Gould. Pl. 38, figs. 65–67.

Imperforate, pellucid, glossy; greenish orange; whorls $4\frac{1}{2}$, periphery angulated, base remotely radiately sulcate.

Diam. 4·3, alt. 3·7 mill.

*Aurora Island.*

N. VENOSA, Pease. Pl. 38, figs. 62–64.

Imperforate, smooth, shining, thin; light yellowish ash-color, with hair-like radiating and spiral darker lines, base usually darker; whorls 5, periphery angulated. Diam. 10, alt. 6·25 mill.

*Ins. Rarotonga.*

N. FRIVOLA, Pease. Pl. 38, figs. 77–79.

Imperforate, thin, smooth, shining; light yellowish corneous; whorls 4, scarcely angulated on the periphery, suture obsoletely margined. Diam. 5·5, alt. 3·5 mill.

*Ins. Oualau.*

N. CHAMISSOI, Pfr. Pl. 38, figs. 74–76.

Imperforate, thin, very closely radiately and concentrically striate above; scarcely shining; light yellowish corneous, the striæ often appearing as whitish scratches, below smoother, more polished, darker colored; whorls $4\frac{1}{2}$, periphery angulated.

Diam. 9, alt. 4·5 mill.

*Sandwich Islands.*

N. CICERCULA, Gould. Pl. 38, figs. 71–73.

Imperforate, thin, subopaque, fulvous; incremental striæ conspicuous, spiral striæ few; whorls 5, the last angulate.

Diam. 7, alt. 3·3 mill.

*Mts. of Hawaii, Sandwich Is.*

N. CRYPTOPORTICA, Gould. Pl. 38, figs. 68–70.

Imperforate, thin, pellucid, shining, slightly striate; greenish yellow; whorls $5\frac{1}{2}$, periphery obtusely angulated.

Diam. 5·75 mill.

*Sandwich Is.*

N. NORMALIS, Pease. Pl. 39, figs. 80–82.

Imperforate, thin, fragile, shining, lightly closely striate; yellowish or reddish corneous; whorls 5–6, periphery carinate, the carina margining the suture in the upper whorls.

Diam. 4, alt. 3 mill.

*Society Islands.*

N. SUBTILISSIMA, Gould. Pl. 39, figs. 92–94.

Imperforate, very fragile, polished; whorls 5, periphery very acutely carinated. Diam. 3, alt. 1·5 mill.

*Sandwich Is.*

N. ANGUSTIVOLUTA, Garrett. Pl. 39, figs. 83–85.

Imperforate, thin, smooth, shining; pale amber-colored, with or without small, irregular opaque white spots; whorls 5½–6, suture narrowly margined, periphery subangulated.

Diam. 4·5, alt. 2·5 mill.

*Moorea, Society Islands.*

N. CLAUSA, Heude. Pl. 39, figs. 86–88.

Imperforate, rather solid, minutely striated; whitish; whorls 7, periphery angulated. Diam. 7·5, alt. 4 mill.

*Houang-tcheou fou, China.*

B. *Perforate.*

*a. Periphery not carinated.*

N. GEMMA, Pfeiffer. Pl. 39, figs. 95–97.

Subperforate, thin, smooth, shining, pellucid; greenish hyaline; whorls 4, suture submargined. Diam. 9, alt. 5 mill.

*Ins. Luzon* and *Camiguing, Philippines.*

It is *N. suturalis*, Beck.

N. TERSA, Issel. Pl. 39, figs. 1–3.

Very minutely perforate, very glossy; light yellowish; whorls 5½. Diam. 7, alt. 6 mill.

*Borneo.*

N. PERLUCIDA, Issel. Pl. 39, figs. 8–10.

Very minutely perforated, very fragile, pellucid, lightly obliquely striulate; yellowish corneous; whorls 5.

Diam. 2·3, alt. 2 mill.

*Sarawak, Borneo.*

N. MACDOUGALLI, Issel. Pl. 39, figs. 11–13.

Subcovered perforate, very fragile, translucent, a little shining, obliquely striulate; yellowish corneous; whorls 4½, periphery sometimes obscurely subangulated. Diam. 2, alt. 1·5 mill.

*Sarawak, Borneo.*

N. Vestii, Jickeli. Pl. 39, figs. 19–21.

Narrowly perforate, translucent, a little shining, lightly closely spirally striated, obsoletely decussated by longitudinal lines; fulvous corneous; whorls $4\frac{3}{4}$, suture thread-margined.

Diam. 2, alt. 1·25 mill.

*Abyssinia.*

N. Wilsoni, Semper. Pl. 39, figs. 16–18.

Very narrowly perforate, thin, diaphanous, very shining; light corneous; whorls $4\frac{1}{2}$–5, suture submargined.

Diam. 12·5, alt. 7 mill. *Ins. Palau.*

E. margaritacea, Semper. Pl. 39, fig. 6.

Perforate, thin, lacteous, hydrophanous, very smooth; whorls 6–$6\frac{1}{2}$, suture submargined, periphery subangulated.

Diam. 7, alt. 5·5 mill. *Ins. Palau.*

N. Stephus, Benson. Pl. 39, figs. 22–24.

Very narrowly perforate, smooth, scarcely striulate, polished, translucent; fulvous; whorls 6, suture submargined, last whorl very obtusely angulate above the periphery; lip subsinuous.

Diam. 10, alt. 4·5 mill.

*Port Blair, Andaman Is.*

N. succinea, Pfr. Pl. 39, figs. 25–27.

Obsoletely subperforate, thin, pellucid, shining; amber-colored; whorls 5, rapidly enlarging, suture submargined.

*Ins. Luzon, Philippines.*

A variety occurs in the island of Mindoro with the periphery obsoletely chestnut-banded.

N. lactea, Semper. Pl. 39, figs. 98–100.

Very narrowly perforate, hyaline, glabrous, shining; whitish; whorls 5, suture margined. Diam. 7, alt. 4 mill.

*Mt. Arayat, Ins. Luzon.*

N. umbrina, Pfr. Pl. 39, fig. 7.

Scarcely perforate, thin, lightly striulate, very glossy; umber brown; whorls $4\frac{1}{2}$, suture margined. Diam. 7, alt. 3 mill.

*Ceylon.*

N. Thwaitesi, Pfr. Pl. 39, fig. 5.

Perforate, striulate, shining; yellowish white; whorls $6\frac{1}{2}$, suture submargined. Diam. 5, alt 3 mill.

*Ceylon.*

N. LUCIDELLA, Pfr. Pl. 39, fig. 4.

Perforate, striulate, very shining; brown; whorls 4, suture white-margined. Diam. 3·6, alt. 2 mill.

*Cagayan, Ins. Luzon.*

N. HODGSONI, Blanford. Pl. 39, figs. 14, 15.

Narrowly perforate, somewhat solid, radiately striulate, with inconspicuous spiral striæ above, slightly shining, smoother below, translucent whitish under the caducous light horny epidermis; whorls 5, suture lightly margined.

Diam. scarcely 7, axis 4·5 mill.

*Pankabari, Darjiling, India.*

N. ALLERYANA, Crosse. Pl. 39, fig. 91.

Perforation nearly covered, very thin, fragile, translucent, scarcely striulate, slightly shining; light greenish yellow; whorls 4½. Diam. 7, alt. 3·5 mill.

*New Caledonia.*

N. UPOLENSIS, Mousson. Pl. 39, figs. 89, 90.

Scarcely perforate, thin, pellucid, shining, striæ very slight; yellowish corneous; whorls 5, suture submargined; columella subnodulously thickened. Diam. 6·5, alt. 4·5 mill.

*Ins. Apia, Upolu, Navigator's Is.*

It is *N. Samoensis*, Baird.

Var. ONEATAENSIS, Mousson.

A little more globose, columella distinctly noduled.

N. MOOREANA, Garrett. Pl. 40, figs. 59–61.

Perforate, thin, pellucid, shining, faintly striated, whitish corneous; whorls 4, suture faintly margined, periphery rounded.

Diam. 4, alt. 2·5 mill.

*Moorea, Society Is.*

N. MINUTULA, Crosse. Pl. 40, figs. 28–30.

Scarcely perforate, slightly striate, arcuately striulate, thin, pellucid; blackish green; whorls 3½, suture profoundly impressed. Diam. 3, alt. 2 mill.

*New Caledonia.*

N. ABYSSINICA, Jickeli. Pl. 40, figs. 33–35.

Very narrowly perforate, rather thin, pellucid, very shining, lightly longitudinally striate, decussated by very slight, close

spiral striæ; reddish fulvous; whorls 5, suture thread-margined; extremities of lip joined by a white callus.

Diam. 7, alt. 3·75 mill. *Prov. Hamaszen, Abyssinia.*

N. Bourguignatiana, Mabille and Le Mesle. Pl. 40, figs. 31, 32.

Perforation almost covered, pellucid, shining, longitudinally rather obsoletely striate, with impressed spiral lines; corneous; whorls 6. Diam. 6, alt. 3 mill.

*Cambodia.*

N. pauxillula, Benson. Pl. 40, figs. 38–40.

Minutely perforate, striulate and with very minute close spiral lines, diaphanous, shining; light corneous; whorls 4.

Diam. 2, alt. ·66 mill. *Thyet Mio.*

N. Towsendiana, Austen and Nevill. Pl. 40, figs. 49–51.

Scarcely rimate, vitreous, smooth, shining; whorls 4½, suture margined, periphery rounded. Diam. 1, alt. ·3 mill.

*Perak.*

N. Zikaveiensis, Heude. Pl. 40, figs. 43–45.

Perforate, translucent, shining, very minutely striulate; fulvous amber-color; whorls 4. Diam. 2, alt. 1 mill.

*Shanghai* and *Pekin, China.*

N. Schmackeriana, Mollendorff. Pl. 40, fig. 36.

Perforate, very obsoletely decussately sculptured, shining, pellucid; fulvous corneous; whorls 4½. Diam. 6·5, alt. 4 mill.

*Hongkong, Lofoushan Mt.*

N. planula, Heude. Pl. 40, figs. 55–57.

Perforate, thin, shining, very minutely striulate; whitish; whorls 4½. Diam. 7, alt. 3 mill.

*Ninkouo-fou, China.*

N. Vitiensis, Mousson. Pl. 40, figs. 46–48.

Perforate, thin, pellucid, striulate, shining; light corneous; whorls 5, suture simple, periphery rounded. Diam. 5, alt. 3 mill.

*Viti Is.*

*b. Periphery subangulate.*

N. Palaensis, Semper. Pl. 40, fig. 37.

Perforation almost covered, thin, pellucid, very shining; reddish gray; whorls 5, suture margined, periphery subangulate.

Diam. 5·5, alt. 3·5 mill. *Ins. Palau.*

N. VITRININA, Liardet. Pl. 40, figs. 41, 42.

Perforate, thin, translucent; yellowish corneous; whorls 4½, the last subangulated and obscurely brown banded on the periphery, suture margined. Diam. 9 mill.

*Ins. Taviuni, Viti Is.*

Animal black, the mantle covering two-thirds of the shell—which it cannot enter at first.

N. RAMSAYI, Liardet. Pl. 40, fig. 52.

Shell like the preceding species.

Animal red; a protuberance on the back rests against the shell. Like the preceding species it cannot at first recede into its shell; its mucus is of a brick red color. The creature walks by a series of loop or arch-like progressions.

N. RAMBURIANA, Mabille and Le Mesle. Pl. 40, figs. 76, 77.

Perforate, smoothish; thin, a little shining and numerously arcuately striate above, polished, and obsoletely striate below; corneous; whorls 6–7, the last angulate. Diam. 10, alt. 5 mill.

*Cambodia.*

N. MYOPS, Dohrn and Semper. Pl. 40, figs. 53, 54.

Very narrowly perforated, thin, pellucid, shining; grayish corneous; whorls 4½, suture submargined, periphery obsoletely angulated. Diam. 6, alt. 4 mill. *Ins. Mindanao, Philippines.*

N. SONAMARGENSIS, Nevill. Pl. 40, figs. 68–70.

Narrowly perforate, thin, closely ribbed above, obsoletely so below; horny brown; whorls 7, narrow periphery obtusely angulated. Diam. 11·5, alt. axis 4·5 mill.

*Sonamarg, Kashmir.*

N. STENOMPHALA, Mollendorff. Pl. 40, figs. 71, 72.

Narrowly perforate, thin, pellucid, lightly striulate, and with slightly stronger decussating spiral lines; yellowish corneous; periphery very obtusely angulated. Diam. 3·25, alt. 2·25 mill.

*Ins. Hongkong.*

N. MINENSIS, Mollendorff. Pl. 40, fig. 58.

Narrowly perforate, lightly striulate, shining, pellucid; light fulvous; whorls 5, periphery obtusely subangulated.

Diam. 3·5, alt. 2·5 mill. *Prov. Fudshien, China.*

Is *N. glaberrima*, Moll. not Semper.

N. MICROGYRA, Heude. Pl. 40, figs. 62–64.

Narrowly perforate, diaphanous, minutely striated; whorls $6\frac{1}{2}$, narrow, the last obtusely angulated. Diam. 6, alt. 4 mill.

*China.*

N. COLOMBELIANA, Heude. Pl. 40, figs. 73–75.

Perforate, fragile, pellucid, minutely striate; light fulvous; whorls 6, the last obtusely angulated. Diam. 5, alt. 3·5 mill.

*Yihing, China.*

N. SEKINGERIANA, Heude. Pl. 41, figs. 41–43.

Perforate, fragile, pellucid, minutely striate; fulvous; whorls 6, the last obtusely angulated. Diam. 3·7, alt. 3·5 mill.

*Ningkouo, China.*

N. BAMBUSICOLA, Heude. Pl. 41, figs. 76–78.

Perforate, pellucid, striulate; light corneous; whorls 5, the last obtusely angulated. Diam. 4, alt. 3·5 mill.

*Ningkouo, China.*

N. SPELÆA, Heude. Pl. 41, figs. 69–71.

Perforate, shining, minutely striulate; chestnut-colored; whorls 6, the last obtusely angulated. Diam. 4·5, alt. 3 mill.

Near *Nankin, China.*

N. CASTANEOLA, Heude. Pl. 41, figs. 59, 60.

Perforate, fragile, pellucid, smooth; light fulvous; whorls 6, suture deeply impressed, periphery very obtusely angulated. Diam. 4, alt. 3 mill.

*Dist. Tsingyang, China.*

*c. Periphery carinate.*

N. PALMICOLA, Stoliczka. Pl. 40, figs. 65–67.

Narrowly umbilicated, thin, striulate; yellowish white, shining; base olivaceous; whorls 5, periphery acutely angulated. Diam. 2·8, alt. 2·2 mill.

*Penang.*

N. DISCORDICE, Garrett. Pl. 41, figs. 45–47.

Minutely perforate, smooth, fragile, thin, pellucid, shining, lightly striate; pale corneous; whorls $4\frac{1}{2}$, periphery angulated. Diam. 4, alt. 2·5 mill.

*Marquesas, Cook's Is., Society Is.*

C. *Umbilicated.*

N. EURYOMPHALA, Bourg. Pl. 41, fig. 79.

Umbilicated, smooth, thin, pellucid, shining, very lightly striate; corneous; whorls $5\frac{1}{2}$, suture submargined.

Diam. 6, alt. 3 mill. *Abyssinia.*

N. PAUXILLUS, Gould. Pl. 41, figs. 51–53.

Umbilicated, thin, costulately striated above; greenish hyaline; whorls 4. Diam. 4·5, alt. 2 mill.

*Sandwich Islands.*

It is *N. pusillus*, Gould, not Lowe.

N. PERFORATA, Desh. Pl. 41, figs. 83, 84.

Umbilicated, fragile, pellucid, very minutely closely, irregularly striated above, smooth below; yellowish corneous; whorls $4\frac{1}{2}$–5. Diam. 6, alt. 3·5 mill.

*Pekin.*

N. MOLLENDORFFI, Reinhardt. Pl. 41, figs. 56–58.

Umbilicated, polished, lightly striulate, decussated by very slight spiral striæ; fulvous; whorls $5\frac{1}{2}$, suture narrowly margined. Diam. 10, alt. 5·5 mill.

*Pekin.*

N. REJECTA, Pfr. Pl. 41, figs. 44, 63–65, 66–68.

Narrowly umbilicated, thin, striulate, shining; brownish-corneous, a little paler around the umbilicus; whorls nearly 5, suture submargined. Diam. 12, alt. 5 mill.

*Northern and Central China.*

*N. mamillaris*, Heude (figs. 66–68), is a synonym.

N. PLANATA, Heude. Pl. 41, figs. 72–74.

Umbilicated, smooth, polished; light amber-colored; whorls 4, the last one rapidly enlarging. Diam. 10, alt. 3·5 mill.

*Hounan, China.*

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*Unfigured Species of Microcystis.*

| | |
|---|---|
| N. PUNCTIFERA, Garrett. | *Rurutu Isl.* |
| N. SORORIA, Cox. | *Ovalau, Fiji Is.* |
| N. PATESCENS, Cox. | *Norfolk Island.* |
| N. CATLETTI, Brazier. | *Lord Howe's Isl.* |
| N. KERMANDECI, Pfr. | *Sunday Isl., Kermandec Group.* |

N. AURULENTA, Beck. *Pitcairn's Isl.*
N. STRIOLATA, Pease. *Ebon Isl., Marshall's Group.*
N. SUCCINULATA, Le Guillou. *Ins. Guam, Moluccas.*
N. SUBRUTILA, Mighels. *Oahu, Sandwich Is.*
N. FERNSHAWENSIS, Petterd. *Australia.*
N. PERFUCATA, Benson. *Ceylon.*
N. RORIDA, Benson. *Darjiling, India.*
N. MARGARITA, Beck (preocc. by Hombr. et Jacq.). *Pitcairn's Isl.*
N. LARDYI, Charpentier. *Ins. Opara.*
N. WANGANENSIS, Cox. *San Christoval, Solomon's Is.*
N. STRAMINEA, Semper. *Ins. Palau.*
N. SUBCICERCULA, Garrett. *Rarotonga, Cook's Is.*

Section MICROCYSTINA, Mörch., 1872.

The group *Lamprocystis*, Pfeffer, which at first I was inclined to treat as distinct (p. 9), may very well be included here.

N. RINKII, Mörch. Pl. 41, fig. 82.

Narrowly umbilicated, finely regularly spirally striate, polished above; color rich sienna-brown above, covered with a dull white deposit below; whorls 5, periphery rounded; columellar margin thickened, much sinuated. Diam. 5·4, alt. axis 2·6 mill.

*Isl. of Teressa, Nicobar Group.*

N. KIVAENSIS, Garrett. Pl. 41, fig. 61.

Imperforate, thin, pellucid, smooth, glossy; yellowish corneous; whorls 5, suture margined; periphery rounded; columella white, prominently toothed. Diam. 4, alt. 3 mill.

*Viti Islands.*

N. NODULATA, Mousson. Pl. 41, fig. 87.

Imperforate, thin, pellucid, polished; dark corneous; whorls 6, suture submargined, periphery rounded; columella short, thickened into a tooth-like white nodule. Diam. 5·1, alt. 2·3 mill.

*Vanua Balavo, Fiji Is.*

N. EXCRESCENS, Mousson. Pl. 41, fig. 86.

Imperforate, thin, pellucid, polished; dark corneous; whorls 4½, suture submargined, periphery rounded.

Diam. 5, alt. 3·5 mill.

*Viti-Levu, Fiji Is., Ins Tonga* (Gräffe).

N. FUTUNAENSIS, Mousson. Pl. 41, fig. 85.

Imperforate, thin, pellucid, very shining; brownish corneous; whorls 5½, suture submargined, periphery rounded; columella slit up, forming a long tooth, curved downward and outward below. Diam. 4, alt. 3·2 mill.

*Futuna, Ins. Tonga.*

N. CULTRATA, Gould. Pl. 41, figs. 48–50.

Imperforate, thin, shining; brownish green; whorls 5, suture margined, periphery angulated; columella oblique, callous, white, tooth-like below. Diam. 6, alt. 2·5 mill.

*Ins. Taheiti, Eimeo.*

N. FIRMOSTYLA, Mousson. Pl. 41, fig. 62.

Covered perforate, smooth; shining; corneous; whorls 5½, suture submargined, periphery rounded; columella white, dentately thickened. Diam. 3, alt. 2 mill.

*Ins. Samoa, Uvea.*

N. TAVIUNIENSIS, Liardet. Pl. 41, figs. 54, 55.

Minutely perforate, smooth, highly polished; yellowish corneous; whorls 5; columella white, with a callous curved tooth near the base.

*Is. of Taviuni and Gamia, Fiji Group.*

"Animal very active. I observed it on one occasion, when interrupted in progression, lift its tail high and shake it vigorously."

*** *The following species included in Microcystina by Austen, etc., are conchologically only distantly related, wanting the tooth-like callus on the columella; they might as well have been placed in Macrochlamys.*

N. MOERCHIANA, Austen. Pl. 41, fig. 75.

Polished, microscopically spirally striated, reddish brown; whorls 5; columella solid and quite perpendicular at the junction with the body-whorl. Diam. 8·2, alt. axis 3·8 mill.

*Kondul Isl., Bay of Bengal.*

N. WARNEFORDI, Nevill. Pl. 42, fig. 89.

Narrowly perforate, very finely microscopically spirally striate, glossy; umber-brown; whorls nearly 5; columellar margin oblique, very slightly reflected, solid and angulate. Diam. 4·6, alt. axis 2 mill. *Andaman Is.*

N. HARRIETENSIS, Nevill. Pl. 42, fig. 12.

Narrowly perforate, finely spirally striated, crossed by rather regular growth-lines, but not decussated; umber-brown; whorls 4. Diam. 2·3, alt. axis 1·3 mill.

*Mt. Harriet, Port Blair, Andaman Is.*

N. CRYPTOMPHALUS, Nevill. Pl. 42, fig. 88.

Narrowly perforate, spirally finely striated; pale brown; whorls 5; peristome reflected and angulated at the columellar margin. Diam. 3·1, alt. axis 1·5 mill.

*Parisnath Hill, Hazaribagh, Lower Bengal* (alt. 4480 feet).

N. SINICA, Mollendorff. Pl. 42, fig. 11.

Narrowly perforate, thin, pellucid, shining, very minutely striulate; brownish corneous; whorls 5, the last obscurely subangulated; columellar margin sinuous.

Diam. 1·5, alt. scarcely 1 mill.

*Prov. Guangdung, China.*

Section SAGDINELLA, Mörch, 1872.

N. DIDRICHSENII, Mörch. Pl. 42, fig. 13.

Perforate, shining, subcostulate above, base smooth; whitish; slightly iridescent; whorls 3½, periphery obsoletely angulated.

Diam. 2·5, axis 2 mill.

*Sambelong, Nicobar Is.*

N. MICROTROCHUS, Mörch.

Shell obtusely angulated, perforation covered, columella straight, whorls with a pellucid sutural line; otherwise as in the last species. Alt. 3·5, diam. nearly 3 mill.

*Sambelong, Nicobar Is.*

Unfigured.

Section THAPSIA, Albers, 1860.

N. INDECORATA, Gould. Pl. 42, figs. 97–99.

Narrowly umbilicated, thin, smooth, shining; greenish yellow or brownish corneous; whorls 5½, suture impressly margined.

Diam. 14, alt. 7 mill.

*Liberia.*

N. THOMENSIS, Dohrn. Pl. 42, figs. 2, 3.

Narrowly umbilicated, thin, pellucid, striatulate; reddish or yellowish corneous; whorls 4–5, suture margined, usually white threaded, periphery subangulated. Diam. 12, alt. 9·5 mill.

*Ins. St. Thomas, W. Africa.*

N. CHRYSOSTICTA, Morelet. Pl. 42, figs. 94–96.

Perforate, thin, smooth, radiately striated at the suture, shining, pellucid; fulvous or yellowish corneous, with irregular straw-colored opaque dots and maculations; spire more or less depressed; whorls 5–5½, periphery obtusely angulated. Diam. 13, alt. 6 mill.

*Ins. St. Thomas, W. Africa.*

N. AGLYPTA, Dohrn. Pl. 42, figs. 4, 5.

Perforation nearly covered, striulate, slightly shining, diaphanous; reddish corneous; whorls 7, periphery carinated. Diam. 10, alt. 10 mill.

*Prince's Isl., Guinea.*

N. CALAMECHROA, Jonas. Pl. 42, figs. 8, 9.

Perforate, thin, shining, pellucid, regularly striate and very lightly spirally lined, forming a decussation scarcely apparent to the naked eye; straw-colored; whorls 5½. Diam. 17, alt. 8 mill.

*Guinea.*

It is *N. tenera*, Jonas, *in litt.*

N. EGENULA, Morelet. Pl. 42, figs. 91–93.

Perforate, thin, somewhat solid, rather smooth, shining, pellucid, corneous; whorls 4½. Diam. 7, alt. scarcely 4 mill.

*Senegal.*

N. COLUMELLARIS, Pfr. Pl. 42, figs. 6, 7.

Scarcely perforate, thin, pellucid, smooth; amber-colored; whorls 4½, suture margined; columella bearing a tooth-like thickening of callus. Diam. 7, alt. 4 mill.

*Senegal.*

N. OLEOSA, Pfr. Pl. 42, figs. 100, 1.

Subperforate, thin, smooth, oleaceous-shining; brownish corneous; whorls 4½. Diam. 5·6, alt. 3 mill.

*Ibu, W. Africa.*

N. PELLUCIDA, Gould. Pl. 42, fig. 14.

Perforate, thin, very lightly, minutely decussated, pellucid, shining, light corneous; whorls $5\frac{1}{2}$, suture submargined, periphery angulated. Diam. 20·5, alt. 10 mill. *W. Africa.*

Is perhaps a not fully grown state of the next species, but is more distinctly angulated than the incomplete stage of *N. troglodytes* before me; if identical, Gould's name has priority of publication.

N. TROGLODYTES, Morelet. Pl. 42, figs. 18–20.

Perforate, thin, shining, very lightly, minutely decussated; yellowish or brownish corneous; whorls 7, suture submargined, periphery obtusely angulated, becoming rounded in front.

Diam. 26, alt. 13 mill. *Guinea.*

*N. Africana*, Pfr., is a synonym. According to Dr. von Martens this species has also been observed at Bonjongo, Mozambique, but his figure differs, and Bourguignat has given it a new name.

N. BUCHHOLZI, Bourg. Pl. 42, fig. 90.

This is the *N. troglodites* of Dr. von Martens, not Morelet.

*Bonjongo, Mozambique.*

N. NYASSANA, E. A. Smith. Pl. 42, figs. 15–17.

Perforate, thin, rather glossy, growth-lines rather prominent, crossed by close concentric microscopic striæ; brownish corneous; whorls $5\frac{1}{2}$, the last with a prominent keel.

Diam. 25, alt. 13 mill.

Between *L. Nyassa* and the *East Coast of Africa.*

Perhaps should be united with Martensia (p. 50).

N. BIGOTI, Crosse. Pl. 42, fig. 10.

Scarcely perforate, thin, shining, very obsoletely distantly striate; olive-fulvous; whorls 5, suture submargined, periphery very obsoletely angulated. Diam. 23, alt. 11 mill.

*Ins. Mayotte.*

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N. LIBERIÆ, A. D. Brown (unfigured = ? a young *troglodytes*, Morel. *Cape Palmas.*

N. CEREA, Gould (unfigured). *Cape Palmas.*

N. GLOMUS, Albers (unfigured. Perhaps a Streptaxis). *Liberia.*

Section Oxytes, Pfeiffer, 1855.

N. Oxytes, Benson. Pl. 42, figs. 21, 22.

Umbilicated, obliquely subplicate; brownish corneous; whorls $5\frac{1}{2}$, the suture carinate margined, periphery acutely angulated. Diam. 47, alt. 17 mill.

*Eastern Bengal.*

N. cycloplax, Benson. Pl. 43, fig. 23.

Rather widely umbilicated, solid, closely striated above, subdecussated by more distant spiral striæ; reddish-corneous above; whorls 5, the periphery carinate, below the carina a chestnut band, base greenish corneous. Diam. 41, alt. 17 mill.

*Sikkim Himalayas.*

N. Castor, Theobald. Pl. 43, figs. 24–26, 34.

Perforate, thin, striulate, and decussated by slight, almost obsolete minute spiral lines; corneous; whorls $5\frac{1}{2}$, suture linear, periphery acutely angulated. Diam. 30, alt. 11·5 mill.

*Khasi Mts., India.*

*N. Pollux*, Theobald (figs. 24,25) and *N. Cherraensis*, Blanford (fig. 34), are only varieties of this form.

N. Blanfordi, Theobald. Pl. 43, figs. 27–29.

Umbilicated, costulately striated, very minutely flexuously granulated, undulating at the periphery; brownish corneous, with a narrow white line at the periphery and suture; whorls $5\frac{1}{2}$, periphery acutely angulated. Diam. 24, alt. 9 mill.

*Darjiling, India.*

Umbilicus not so open as in *N. Oxytes* and *N. cycloplax*, but more so than in *O. Castor*.

N. Shanensis, Austen.

Umbilicated, thin, sculpture fine longitudinal striæ arranged in about fourteen wavy indistinct spiral bands; dark ochraceous or pale umber, covered with a thin epidermis; whorls 5, periphery sharply keeled. Diam. 28, alt. axis 7 mill.

*Shan States, India.*

Unfigured.

N. ochthoplax, Benson. Pl. 43, fig. 30.

Umbilicus partly covered, rather solid, obliquely rugosely striate, obsoletely granulated, decussated by obsolete, distant

spiral lines, closer below; reddish chestnut color; whorls 5, periphery carinated; peristome expanded, whitish, its extremities joined by a thin callus. Diam. 54, alt. axis 26 mill.

*Khasi* and *N. Cachar Mts., India.*

N. Eucharis, Desh. Pl. 43, figs. 36–38; Pl. 44, fig. 65.

Perforate, thin, arcuately striated above, subgranularly decussated by spiral striæ, scarcely shining, base smoother and more shining; light greenish; whorls $5\frac{1}{2}$, periphery compressly carinate. Diam. 28, alt. 16 mill.

*Feneriffa Is., N. W. Madagascar.*

*N. Feneriffensis*, H. Adams (fig. 25), is a synonym.

N. subtecta, Pfr. Pl. 43, fig. 35.

Perforation nearly covered, thin, closely striated, subgranulated above by impressed spiral lines, diaphanous, smoother below; light corneous; whorls 6, periphery carinated. Diam. 15, alt. 9 mill.

*Solomon Is.*

This is *N. Eucharis*, Reeve, not Deshayes.

N. Shiplayi, Pfr. Pl. 43, fig. 42.

Perforate, rather solid, arcuately plicate above, elegantly granulated by spiral lines, base smoother; orange-brown; whorls 6, suture subchanneled, periphery acutely angulated. Diam. 20, alt. 11·5 mill.

*Nilgherry Mts., India.*

N. Koondaensis, Blanford. Pl. 43, fig. 33.

Perforate, thin, obliquely striate, lightly decussated by close, minute spiral lines above, smoother below; a little shining and radiately striate; corneous; whorls 5, periphery carinated, the carina becoming more obtuse anteriorly; aperture white-margined within. Diam. 25, axis 12 mill.

*Nilgherry Mts., India.*

N. camura, Benson. Pl. 43, fig. 43.

Narrowly umbilicated, obliquely rugosely plicate-striate, very minutely, lightly granulated, smoother below, translucent; yellowish corneous; whorls $6\frac{1}{2}$, suture of earlier whorls margined, periphery compressly carinated. Diam. 22, axis 10 mill.

*Near Darjiling, India.*

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N. Linnæana, Pfr. Pl. 43, fig. 46.

Umbilicated, rugosely malleated above, obliquely minutely rugulose below; light fulvous; whorls $5\frac{1}{2}$, periphery acutely carinated; lip thickened, flesh-color, the extremities joined by a callus. Diam. 62, alt. 28 mill.

*Hab. unknown.*

Possibly a true Helix and an aberrant member of the group Hadra.

N. Pallasiana, Pfr. Pl. 44, figs. 49, 50.

Umbilicated, solid, subgranularly striated; fulvous white, with a chestnut band below the carina; whorls $5\frac{1}{2}$, the last shortly descending in front, periphery carinated; lip obtuse, a little expanded above, the extremities connected by a callus.

Diam. 43, alt. 18 mill.

*Corea?*

Originally ascribed to Bermuda, which is certainly erroneous.

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N. sylvicola, Blanford. (Unfigured.)

*N. Cachar, Eastern Bengal.*

N. Euterpe, Pfr. (Unfigured.) *Siam.*

Subgenus Sessara, Albers, 1860.

N. mamillaris, Blanford. Pl. 43, figs. 47, 48.

Minutely perforate, thin, closely, arcuately costulate above and crossing the carina, smooth, shining and radiately striated below; orange-brown above, lighter on the base; whorls $7\frac{1}{2}$, the periphery acutely carinated; base with two or three opaque maculations corresponding with internal callous deposits; columella in the young shell with a more or less rudimentary spiral lamina, becoming obsolete in the adult. Diam. 11, axis 6·5 mill.

*Akoutong, Pegu.*

N. Basseinensis, Blanford. Pl. 43, fig. 45.

Minutely perforated, thin, corneous, closely arcuately costulate above and crossing the carina, smooth, shining, radiately striate below; whorls 7, periphery carinate, carina evanescent in front. Diam. 11, alt. axis 7·5 mill.

*Near Bassein, Arakan.*

N. PYLAICA, Benson. Pl. 43, fig. 44.

Covered perforate or imperforate, rather solid, radiately costulate above, smoother and shining below; corneous, base lighter; whorls $6\frac{1}{2}$, periphery angulate; parietal wall of aperture with a strong white lamelliform tooth, lip thickened, sinuous, white.

Diam. 9, alt. 5·3 mill.

*Moulmein, Burmah.*

N. HELICIFERA, Blanford. Pl. 43, figs. 31, 32.

Young shell perforate, adult imperforate but profoundly excavated, thin, acutely arcuately costulate above, extending over the carina, smoothly polished and minutely striate below; corneous; whorls $7–7\frac{1}{2}$, the periphery angulated, base with one or two irregular pits corresponding with interior callous deposits; columella with a spiral lamina, lip slightly thickened within.

Diam. 10, alt. 7 mill.

*Mts. of Aracan.*

N. INFRENDENS, Gould. Pl. 43, figs. 39–41; Pl. 44, figs. 51, 58–60.

Imperforate, but deeply impressed below, rugosely striate above, smooth and shining on the base; whorls 7, periphery angulated; lip slightly thickened, bearing two connected teeth below the peripheral angle, and a separate additional one on the base. Diam. 11, alt. 5–6 mill.

*Tavoy, Burmah.*

Var. CAPESSENS, Benson. Fig. 51.

The three teeth subequal.

*Moulmein, Burmah.*

Var. TICKELLI, Theobald. Figs. 58–60.

The two outer teeth closer than in the type, almost uniting.

*Moulmein, Burmah.*

N. ATARANENSIS, Theobald. Pl. 44, figs. 54, 55.

Imperforate, costulately striate above, smoother below; light chestnut-color; whorls $6\frac{1}{2}$, periphery acutely carinated; lip thickened within, white, the basal portion armed with two teeth, the one nearest the umbilicus small, entering, the other thickened, lamellar, curved, reclining, dentately raised at the extremities.

Diam. 10, alt. 4·5 mill.

*Ataran River, near Martaban.*

N. Hungerfordiana, Theobald. Pl. 44, figs. 63, 64.

Imperforate, closely striate above, smooth below; whorls 6, periphery acutely carinated; lip thickened, with three large teeth below, the middle and outer ones connected by a slight callus. Diam. 11, alt. 5·5 mill.

*Near Moulmein, Burmah.*

N. inermis, Theobald. Pl. 44, figs. 56, 57.

Very narrowly perforate, lightly striated above, shining; corneous; whorls 7, the last acutely filiformly carinated; lip thickened, sinuated, but without teeth. Diam. 11·6, alt. 4·8 mill.

*Near Moulmein, Burmah.*

N. Annamitica, Crosse and Fischer. Pl. 44, figs. 61, 62.

Scarcely rimate, rather thin, not shining, but closely costulate above, becoming smooth towards the middle of the base, which is shining; light reddish brown above, yellowish corneous below; whorls 6, the last obtusely carinated; basal margin of aperture a little thickened, not toothed. Diam. 12, alt. 7 mill.

*Ins. Poulo-Condor, Cochin China.*

N. setiliris, Benson. Pl. 44, figs. 52, 53.

Perforate, not shining, closely obliquely striulate, with more remote occasionally hairy riblets, translucent, base smooth; reddish corneous; whorls 6–6½, periphery subangulated; margin of aperture a little thickened, especially below, the columellar lip oblique, subdentately thickened, the extremities of the peristome connected by a parietal lamelliform callus.

Diam. 8, axis 5 mill.

*Mauritius, Ins. Bourbon.*

*N. Vintoni*, Desh., is a synonym.

Subgenus Guillainia, Bourg., 1885.

The following species, all unfigured, and inaccessible to me, were found in the valley of the Ouébi and environs of Guelidi, in the interior; four or five days' journey from Moguedouchon, East Africa.

N. Revoili, N. magnifica, N. cœrulans, N. compressa, N. Georgi, N. Rochebruniana, N. Mabilliana, all of Bourguignat.

## Genus ZONITES, Montfort, 1810.

### Subgenus Zonites (typical).

Z. Algirus, Linn. Pl. 44, fig. 66.

Widely umbilicated, the periphery obsoletely angulated, very minutely granularly decussated above; epidermis yellowish corneous, deciduously rayed, base smooth and shining; whorls 6, the earlier ones flattened, the body-whorl more rounded.

Diam. 45 mill.

*Southern France, Sardinia, Corsica, Sicily.*

Some authors have preferred the rather objectionable name of *Z. oculus-capri*, Müller, because of some doubt as to the determination of the Linnean species. Other synonyms are *Helix Lusitanica*, Linn., and *H. ægophthalmos*, Gmel.

Z. verticillus, Fér. Pl. 44, figs. 67–70.

Widely umbilicated, periphery obsoletely angulated, very minutely decussated above, smooth and shining below; epidermis light greenish yellow, or brownish yellow, with olivaceous or darker brown occasional strigations. Diam. 33 mill.

*Southern Austrian Provinces.*

Smaller, and more globose than the preceding species.

The synonyms are *H. lapidicola*, Muhlf.; *H. algira*, Brumati. Dr. Böttger has described a var. *Corcyrensis*, from Corfu; it has $5\frac{1}{2}$ whorls instead of 6 or 7, more distinctly granulated above, periphery more widely angulated. Diam. 29 mill. I also figure a var. *Græca*, Kobelt (fig. 68), from the Morea. The same author has described a var. *Eubœica* (figs. 69, 70), from Mt. Delphi; the periphery distinctly carinated.

Z. Albanicus, Ziegler. Pl. 44, figs. 71, 72; Pl. 45, fig. 79.

Widely umbilicated, somewhat discoidal, periphery slightly angulated, smooth and shining below, minutely granularly decussated and light yellowish brown above, more yellowish below, with a narrow white peripheral band. Diam. 37 mill.

*Albania, Dalmatia.*

A variety *Dinara*, Stentz, has been mentioned but not described; Kobelt has described and figured a var. *Græca* (fig. 72),

from Taygetos, and Böttger has described, without figure, a var. *Narentana*.

*Z. cultellatus*, Thomson (fig. 79), was found living, plentifully in Contra Costa Co., California, nearly thirty years ago, by Mr. John H. Thomson, of New Bedford, Mass. It has not occurred since to Californian collectors, and was doubtless the progeny of an importation, which finally succumbed. I think it may safely be referred to this species.

Z. COMPRESSUS, Ziegler. Pl. 44, figs. 73, 74.

Widely umbilicated, much depressed, periphery obtusely angulated, very minutely clathrate and light brownish above, smooth, shining and yellowish or yellowish white below, periphery narrowly white banded. Diam. 32 mill.

*Mt. Tersatto, near Fiume.*

It is *H. morlachica*, Parr. Var. *lardea*, Stentz (unfigured), is a little larger, the spire a little higher, the periphery more obtusely angulated; var. *Italica*, Kobelt (fig. 74), is from Mt. Majella.

Z. ACIES, Partsch. Pl. 44, figs. 75, 76.

Widely umbilicated, convexly lenticular, periphery distinctly carinated, rugosely striated and very lightly decussated above, reddish corneous, carina whitish, below yellowish white, smooth and shining. Diam. 31 mill.

*Dalmatia.*

The synonyms are *H. acumen*, Fér.; *H. acutimargo*, Ziegl., and *H. algira*, Olivi?

Z. CRYPTA, Parreyss. Pl. 45, figs. 77, 78.

Differs from the preceding species in the growth-striæ being finer and less rugose, and in having much more distinct close spiral lines. Diam. 26 mill.

Caverns in *Dalmatia.*

Z. CARICUS, Roth. Pl. 45, figs. 80–82.

Umbilicated; rather solid; whorls $4\frac{1}{2}$, obliquely rugate and closely granulated above, yellowish corneous, the vertex shining, subimmersed, periphery subcarinated, below smooth, scarcely lighter colored. Diam. 25 mill.

*Asia Minor.*

Differs from the preceding species most strikingly in having fewer whorls.

Z. CHLOROTICUS, Pfr. Pl. 45, fig. 83.

Rather widely umbilicated, somewhat thin, light brownish yellow, closely equally granulated above by longitudinal and more distant spiral striæ; whorls 5, the last with subcarinate periphery, base smooth and shining. Diam. 30 mill.

*Smyrna.*

Z. SMYRNENSIS, Roth. Pl. 45, figs. 84, 85.

Moderately umbilicated; whorls 6, narrow, periphery obtusely carinated, yellowish corneous, or light olivaceous, above slightly granularly decussated, below smooth, shining, remotely yellowish rayed. Diam. 28 mill.

*Smyrna, Ins. Syme.*

Z. CORAX, Parreyss. Pl. 45, fig. 86.

Widely umbilicated, rather solid, obliquely rugosely striated above, granularly decussated by minute spiral striæ, fulvous; whorls 6, periphery subangulated, base radiately striated, shining, lighter colored. Diam. 33 mill.

*Taurus Mts.*

Z. CROATICUS, Partsch. Pl. 45, figs. 87–89.

Widely umbilicated, closely costulate-striate and very lightly decussated above, brownish corneous; whorls 7, the last with obtusely angulated, narrowly white-banded periphery, base yellowish white, often irregularly strigate with olivaceous, shining. Diam., 28 mill.

*Croatia.*

A variety approaching *Z. acies* has been figured in Rossmässler (fig. 89); it occurs in Hercogowina and Montenegro.

Z. PERGRANULATUS, Godet. Pl. 45, figs. 90, 91.

Widely umbilicated, decussately granular above and below, light reddish brown, base light yellowish brown; whorls 6, periphery distinctly carinated. Diam. 31 mill.

*Ins. Amorgo.*

Distinguished from all the other species by its granulated base.

Z. CARNIOLICUS, A. Schmidt. Pl. 45, figs. 92, 93.

Widely umbilicated, rather solid, closely plicately striate above, very lightly decussated by spiral striæ, brownish fulvous;

whorls 6–6½, suture margined, periphery rather acutely carinated and narrowly white-banded, base whitish, shining, smooth.

Diam., 23 mill.

*Ukraine, Bosnia, Carniola, Epirus.*

It is *H. Croatica*, Fér., and *H. sexvolva*, Parr.

Very closely related to *Z. Croaticus*, but is smaller, with less convex whorls, less prominent growth-lines and more plainly granulated surface, and more apparent keel. It connects *Croaticus* with the next species.

Z. Gemonensis, Fér. Pl. 45, figs. 94–96.

Rather widely umbilicated, yellowish, striated and subdecussated above, smooth and shining below; whorls 6, periphery carinate. Diam. 18 mill.

*Gemona, Friuli, Northern Italy.*

*H. isodoma*, Jan., is a synonym.

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Z. Catoleius, Bourg. Pl. 45, figs. 97–99.

Rather narrowly umbilicated, fragile, thin, corneous chestnut-colored, subpellucid, closely striated above, smooth and shining below; whorls 5½, periphery with a thread-like carina, partially appearing at the suture. Diam. 23 mill.

*Assouan, Egypt.*

A somewhat aberrant form.

Z. inopinatus, Desh. Pl. 45, figs. 100–2.

Moderately umbilicated, thin, with growth-striæ above, smoother below, light yellowish brown; whorls 6, the periphery obtusely angulated, with a narrow whitish zone; lip a little expanded below. Diam. 25 mill.

*Moupin, Thibet.*

Certainly not a member of this group, in which Pfeiffer has included it.

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Z. latissimus, Dohrn. (unfigured). *Hasrat Sultan Mts., S. E. of Samarcand.*

Subgenus Hyalinia, Férussac, *em.*, 1819.

Section Vitrea, Fitzinger, 1853.

In this group I have followed the arrangement of Clessin's paper on the section Vitrea, published in Malakozoologische

Blätter, 1880. Twenty-eight species are therein enumerated—to which a few have since been added. The distribution is from the Canary Islands to Japan, including the Mediterranean coast of Africa, all Europe, and Asia north of the Himalayas. The species are small, seldom exceeding five millimetres in diameter, with narrow umbilicus or imperforate, the whorls rather narrow, the form flattened or sublenticular, glassy and transparent. *H. crystallina*, Müll., is taken as the typical form, whilst two subsections are grouped with *H. diaphana* and *H. hydatina* respectively.

I. *Group of H. crystallina.*

H. CRYSTALLINA, Müller. Pl. 46, figs. 3–8.

Shell perforate, depressed, diaphanous, smooth, shining; whorls 4–4½, flattened. Diam. 3–4 mill.

*Iceland*, *Europe*, *Madeira*, *Canaries*.

It is *H. pellucida*, Pennant; *H. vitrea*, Brown; *H. eburnea*, Hartman, and *H. diaphana*, Charp.

Var. COMPLANATA, Jeffreys.

Shell flatter, the last whorl much wider.

Var. NITIDISSIMA, Baudon.

Smaller, fragile, very crystalline, translucent, vitreous, very slightly greenish, brilliant. *Dept. Oise*, *France*.

Var. SUBTERRANEA, Bourg. Figs 6–8.

Umbilicus a little wider, shell flattened above, smooth or elegantly slightly striulate at the suture; whorls 5, suture deep; lip whitish thickened within. Diam. 3 mill.

*Dept. de l'Aube*, *France*, *Germany*, *Sweden*.

Mabille has made a new species, *H. secernanda*, from the figures of this species in Albers' Malacol. Maderensis, but as the figures of this work are often very inaccurate they should scarcely be accepted for differential characters. On the other hand a single specimen found at Fuerteventura, in the Canaries, has the umbilicus a trifle larger than in those from the other islands, and although Wollaston admits the importation of the species from Europe, he calls this Var. *Fuerteventuræ*.

H. PYGMÆA, Böttger. Pl. 46, figs. 12–14.

Much depressed, openly umbilicated, diaphanous, very shining; whorls 3, slowly increasing, distinctly striated at the moderate suture. Diam. 1·65 mill.

*Martkopi*, north of *Tiflis*.

Is perhaps a young shell, but seems to differ from its associates in its wider umbilicus.

H. CONTRACTA, Westerlund. Pl. 46, figs. 15, 16.

Differs from *H. crystallina* in having a narrower spire, whorls 5½–6, very slowly enlarging, the last about equal to the penultimate whorl, the shell smaller, aperture and umbilicus narrower. Diam. 2·5 mill.

*North Germany*, *Sweden*.

Perhaps only a local race of *H. crystallina*.

H. BOTTERI, Parreyss. Pl. 46, figs. 9–11.

Much depressed, umbilicated, thin, pellucid, vitreous white, very slightly striate; whorls 5, with deep suture, narrow, aperture widely semilunar. Diam. 2·5 mill.

*Greece*, *Dalmatia*, *France* (Locard).

Perhaps not distinct from *H. contracta*.

H. DUBREUILI, Clessin. Pl. 46, figs. 17–19.

Narrowly perforate, depressed, vitreous, shining, almost smooth; whorls 5, very slowly enlarging, suture shallow, last whorl but little larger than the penultimate, rounded.

*Switzerland*, *Southern France*, *Northern Spain*.

Westerlund unites this with his *H. contracta*, from which it only differs by a somewhat wider perforation, and the last whorl being more rounded. Surely the "new school" of conchologists are making hair-splitting distinctions which are in disaccord with the best experience of the variability of specific characters.

H. ETRUSCA, Paulucci. Pl. 46, figs. 20, 21.

Rather widely umbilicated, vitreous, very shining, with scarcely apparent very minute arcuate growth-lines; whorls 4–4½, suture impressed and margined, aperture widely lunar. Diam. 2 mill.

*Alluvium of the Arno*, *Tuscany*.

Perhaps not fully grown; Westerlund believes it identical with *H Botteri*.

H. EUSTILBA, Bourg. Pl. 46, figs. 22, 23.

Perforate, depressed, spire plano-convex, fragile, pellucid, vitreous, almost smooth; whorls 5, suture moderately impressed, last whorl a little larger than the penultimate, convexly inflated below, aperture widely semilunar. Diam. 3·5 mill.

*Algiers.*

Distinguished by its inflated last whorl.

H. JICKELII, Clessin. Pl. 46, figs. 24–26.

Very narrowly perforate, microscopically striate, shining; whorls 6, very narrow, last whorl scarcely wider than the penultimate, aperture very narrow. Diam. 3·2 mill.

*Transylvania.*

Distinguished by its laterally compressed whorls, and very narrow aperture.

H. LITORALIS, Clessin. Pl. 46, figs. 27, 28.

Very narrowly perforate, depressed, slightly irregularly striulate, vitreous, shining; whorls 6, slowly enlarging, very narrow, the last whorl almost double the width of the penultimate, aperture narrowly semilunar. Diam. 4 mill.

*Littoral Austria, Croatia.*

Distinguished from *H. crystallina* by its narrower perforation.

H. NARBONENSIS, Clessin. Pl. 46, figs. 29–31.

Narrowly umbilicated, very finely irregularly striated, shining; whorls 5, the last about double the breadth of the penultimate, mouth rather broadly semilunar. Diam., 3·5 mill.

*Southern France.*

The compressed whorls and narrower umbilicus, and more depresssed form, are said to distinguish it from *H. crystallina.*

H. SUBCARINATA, Clessin. Pl. 46, figs. 32–34.

Narrowly perforate, glassy, with a polished, finely striated epidermis; whorls 6, flattened above, the last scarcely wider than the penultimate, and obtusely angulated superiorly, below which it is convex. Diam., 2·8 mill.

*Transylvania.*

H. SUBRIMATA, Reinhardt. Pl. 46, figs. 35–37.

Very narrowly perforate, thin, pellucid, shining, vitreous, slightly irregularly striate; whorls 5, narrow, slowly enlarging,

convex, with deep suture, the last whorl nearly double the width of the penultimate, aperture rather widely semilunar.

Diam., 3 mill.

*Mts. in Moravia, Galicia, Bukowina, Switzerland, Italy.*

Marchioness Paulucci makes this a variety of *H. diaphana*, Studer.

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*Unfigured or doubtful Species.*

| | |
|---|---|
| H. HUMULICOLA, Mabille. | *Northern France.* |
| H. SECRETA, Bourg. | *Spain, Southern France.* |
| H. ANDRÆI, Boettger. | *Switzerland.* |
| H. KUTSCHIGI, Parreyss. | *Ins. Lacroma, near Ragusa.* |
| H. PODOLICA, Clessin. | *Prov. Podolia, Russia.* |
| H. VITREOLA, Bourg. | *Spain, So. France.* |
| H. SORELLA, Mousson. | *Russian Transcaucasia.* |

II. *Group of H. diaphana, Studer (Diaphanella).*

H. ANGYSTROPHA, Böttger. Pl. 46, figs. 38–40.

Shell minute, imperforate, vitreous, shining, spire depressed conical; whorls 6½–7, narrow, nearly of equal width, suture deeply impressed, last whorl obtusely carinate superiorly.

Diam., 3 mill.

*Kutais, Transcaucasia.*

H. APALISTA, Bourg. Pl. 46, fig. 41.

Imperforate, hyaline, diaphanous, white, very thin, smooth, spire somewhat convex; whorls 6, regularly increasing, suture margined. Diam., 4 mill.

*Algiers.*

H. CONTORTULA, Krynicki. Pl. 46, figs. 42, 43.

Imperforate, depressed, hyaline, translucent; whorls 7–8, narrow, very slowly enlarging, the last scarcely wider than the penultimate, periphery rounded, aperture narrowly lunar.

Diam., 4 mill.

*Caucasus, Transcaucasia.*

H. DIAPHANA, Studer. Pl. 47, figs. 51–53; Pl. 46, figs. 44–46, 47, 48.

Scarcely subperforate, vitreous, diaphanous, smooth, very

shining; whorls 6, rather flattened, umbilical region impressed, aperture very narrowly lunar. Diam. 4·7 mill.

*Middle and Northern Europe.*

It is *H. hyalina*, Fér. (figs. 44–46), *H. contorta*, Held., and *H. vitrea*, Bielz.

Var. REITTERI, Böttger. Pl. 46, figs. 47, 48.

Very narrowly perforate, spire slightly convex; whorls 4½–5, distinctly striated at the suture. Diam. 2·75 mill.

*Ins. Lesina, Dalmatia.*

This variety has been considered identical with *H. subrimata*, Reinhardt—which the Marchioness Paulucci makes a variety of *H. diaphana*.

H. PETRICOLA, Paulucci. Pl. 46, figs. 49, 50.

Perforate, convex, depressed, whitish, crystalline, fragile, shining, polished, very slightly striulate above, smooth below; whorls 5–6, subconvex, regularly rapidly enlarging, suture profound, margined. Diam. 3·25–4·25 mill.

*Isl. Sardinia.*

H. ERJAVECI, Brusina. Pl. 47, figs. 54, 55.

Imperforate, thin, hyaline, shining, very slightly irregularly striate; whorls 6½–7, very slowly enlarging, with impressed suture, last whorl scarcely wider than the penultimate. Diam. 3·5 mill.

*Croatia, littoral Austria.*

Differs from *H. diaphana* in the slower increase of the whorls, the last one not dilated, and in the narrower aperture.

H. HILGENDORFI, Reinhardt. Pl. 47, figs. 56–58.

Imperforate, whitish, diaphanous, lightly striate, somewhat convex; whorls 4½, moderately increasing, the last dilated, suture narrowly margined. Diam. 2·75 mill.

*Japan.*

H. MICRODISCUS, Reinhardt. Pl. 47, figs. 59–61.

Imperforate, narrow whorled, whitish diaphanous, rather flattened above, more convex below; whorls 3½–4, regularly enlarging, the last a little dilated, suture narrowly margined. Diam. 1·5 mill.

*Japan.*

H. TRANSYLVANICA, Clessin. Pl. 47, figs. 62–64.

Imperforate, plane above, convex below, very lightly irregularly striulate, shining, diaphanous, spire not elevated; whorls 5–6, the earlier ones narrow, the last nearly three times the width of the penultimate, umbilical region impressed. Diam. 4 mill.

*Transylvania.*

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*Unfigured Species.*

H. PSEUDODIAPHANA, Coutagne. *Southern France.*
H. TENEBRARIA, Bourg. *Spain, So. France.*
H. MORTELLA and H. CAVARELLA, Servain. *Bosnia.*
H. AMELA and ? H. OECOSCIA, Bourg. *Carniola, Croatia, Bosnia.*

III. *Group of H. hydatina, Rossm.* (*Mediterranea*).

H. EUDÆDALÆA, Bourg. Pl. 47, figs. 65–67.

Very narrowly perforate, bluish white, pellucid, very slightly striulate; whorls 6, regularly enlarging, suture deep, subplanate below. Diam. 7 mill.

*Greece.*

H. SUBEFFUSA, Böttger. Pl. 47, figs. 68–70.

Narrowly perforate, horny white, shining; whorls 4, slowly enlarging, suture linear, surface distinctly striulate, subplane below, last whorl nearly double the width of the penultimate. Diam. 3·5 mill.

*Caucasus.*

First described by Böttger as *H. effusa*, a name preoccupied by Pfeiffer.

Var. DEPRESSA, Böttger. Fig. 70.

Shell smaller, whorls more depressed, the last with obsoletely angulated periphery.

H. HYBLENSIS, Parreyss. Pl. 47, figs. 71–73.

Narrowly perforate, hyaline, vitreous, very slightly striulate; whorls 5, regularly slowly enlarging, with distinct linear suture, aperture widely lunate. Diam. 5 mill.

*Sicily.*

H. HYDATINA, Rossm. Pl. 47, figs. 74, 75.

Narrowly perforate, whitish, pellucid, striulate; whorls 5, suture margined, base subplanulate, aperture widely obliquely semilunar. Diam. 6·25 mill.

*Isl. Corfu, Smyrna, Naples.*

It is *H. seminula*, and *H. cuma*, Chierigh.; *H. diaphana*, Muhlf.

H. LATEBRICOLA, Bourg. Pl. 47, figs. 76–78.

Narrowly perforate, compressed, white, diaphanous, pellucid, smooth, slightly elegantly striulate; whorls 5, subplanulate, regularly enlarging, suture impressed, last whorl with obscure peripheral angle. Diam. 5 mill.

*Megara, Greece.*

H. PSEUDOHYDATINA, Bourg. Pl. 47, figs. 79, 80.

Differs from *H. hydatina* by its smaller size, less globose whorls, suture not margined, aperture less oblique, narrower, superior margin not arcuate, perforation narrower.

*France, Italy, Portugal.*

This shell was for a long time confounded with *H. hydatina*, Rossm., a species which does not exist in Western Europe.

H. TARGIONIANA, Paulucci. Pl. 47, figs. 81, 82.

Narrowly perforate, white, crystalline, fragile, polished; whorls 5½–6, suture profound, last whorl wide, rounded, aperture widely lunate. Diam. 4 mill.

*Island of Sardinia.*

H. CAVANNÆ, Paulucci. Pl. 47, figs. 83–85.

Moderately umbilicated, depressed, whitish, diaphanous, vitreous, slightly elegantly striate; whorls 5, slowly regularly enlarging, with well-impressed suture. Diam. 3 mill.

*Mte. Morone, in the Abruzzi, Italy.*

The striæ are too strong and the umbilicus too wide for Vitrea, whilst the small size and numerous whorls exclude it from the section Polita.

H. VERMICULUM, Lowe. Pl. 47, figs. 86, 87.

Perforate, smooth, vitreous, shining; whorls 4½–5, slowly increasing, slightly striulate at the suture. Diam. 5–6 mill.

*Isl. Teneriffe.*

*Unfigured Species probably of this group.*

H. MINURA, Westerlund. *Japan.*
H. ORATA, Letourneux. *Lac Balaton, Hungary.*
H. HYPOGÆA, Bourg. *Southern France.*
H. NOCTUABUNDA, H. ILLAUTA, and H. SEDENTARIA, Bourg. *So. France, Spain.*

Section POLITA, Held, 1837.

*** *European, North African and Western Asiatic Species.*

H. LAWLEYANA, Bourg. Pl. 47, figs. 88–90.

Very minute, narrowly umbilicated, hyaline, fragile, whitish crystalline or somewhat greenish, smoothish or slightly striulate; whorls 4½ or 5, regularly increasing, suture impressed, submarginate. Diam. 1 mill., alt. ·65 mill.

*Near Florence, Italy.*

H. ALLIARIA, Miller. Pl. 47, figs. 91–93.

Narrowly umbilicated, polished, pellucid, yellowish corneous, whitish around the umbilicus; whorls 4½. Diam. 7·5 mill.

*Northern Europe, France, Spain, Ins. St. Helena* (introduced): The synonyms are *H. alliacea*, Jeffreys; *H. nitens*, Shepp.; *H. fœtida*, Stark; and *H. remota*, Benson (fig. 93), introduced in St. Helena. Westerlund has described two slight varieties from Sweden under the names of vars. *viridula* and *anceps*, and another from Spain as var. *Cantabriaca*. This snail disseminates an odor of garlic, especially when irritated.

H. KOMAROWI, Böttger. Pl. 47, figs. 94–96.

Narrowly umbilicated, somewhat solid, subpellucid, very shining, orange corneous above, whitish beneath; whorls 4½–5, rather rapidly enlarging. suture almost superficial, very slightly striulate, more distinctly so at the suture, base subplanate.

Diam. 7·5 mill.

*Shore of the Black Sea between Suchum and Poti.*

It has a broader umbilicus and much larger mouth than *H. alliaria*, and is a smaller shell with narrower umbilicus than *H. glabra*.

H. ALICURENSIS, Benoit. Pl. 47, figs. 97–99.

Narrowly umbilicated, thin, subdiaphanous, subobliquely

striate, yellowish corneous; whorls 5, regularly enlarging, base flattened, aperture oblique, wide. Diam. 8·5 mill.

*Alicuri, one of the Lipari Islands.*

H. GLABRA, Studer. Pl. 47, figs. 100–2.

Narrowly umbilicated, polished, diaphanous, fulvous above, becoming whitish below; whorls 5, regularly enlarging, obliquely flattened above, subplane below, aperture widely obliquely lunar. Diam. 15 mill.

*France, Germany, Switzerland*, etc.

It is *H. tenera* and *H. lurida*, Studer, *H. exquisita*, Desh., and is the type of the group Gemma, Hazay (preoccupied in Veneridæ).

Var. HUNGARICA, Westerlund.

Shell larger, obsoletely irregularly striulate, shining, more convex above, narrowly excavated around the umbilicus; whorls 6½. Diam. 17–18 mill.

*Hungary.*

H. DEPRESSA, Sterki. Pl. 48, figs. 3, 4.

Narrowly perforate, scarcely convex above, hyaline, shining, whitish or yellowish white; whorls 5, suture margined, last whorl nearly double the width of the penultimate, very slightly descending at the aperture in the adult. Diam. 8 mill.

*Upper Rheinthal, Southern portion of the Black Forest*, etc.

H. SUBGLABRA, Bourg. Pl. 48, figs. 5–7.

Perforate, shining, diaphanous, fragile, corneous above, milky white below, slightly striulate, especially at the suture; whorls 6, regularly increasing, suture impressed. Diam. 13–16 mill.

*Northern France.*

The more distinct suture, the wider last whorl, the wider perforation and more distinct striæ separate this, perhaps only varietally, from *H. glabra.*

H. MENTONICA, Nevill. Pl. 48, figs. 8, 9.

Narrowly perforate, spire elevated, subobsoletely striulate, corneous, shining; whorls 6, regularly enlarging, the last whorl very slightly compressed, not dilated towards the aperture, base convex. Diam. 5·75 mill.

*Ste. Agnes*, 2500 ft. alt. at *Mentone, France.*

Only one specimen collected.

H. RIGIACA, Bourg. Pl. 48, figs. 10–12.

Narrowly perforate, compressed, whitish crystalline, shining, smooth; whorls 6, regularly enlarging, the last a little dilated in front, somewhat flattened below, suture well impressed. Diam. 9 mill.

*Mt. Rigi, Switzerland.*

H. DIAPHANELLA, Kryn. Pl. 48, figs. 13–15.

Umbilicus moderate, shell depressed, subplane below, thin, diaphanous, shining, smooth, grayish white or yellowish; whorls 7, planulate, the last attenuated, suture slightly impressed, subduplicate. Diam. 7 mill.

*Crimea.*

It is *H. diaphana*, Kryn. (preoccupied), *H. multispira*, Pfr., and *H. Taurica*, Clessin.

H. TESTÆ, Phil. Pl. 48, figs. 16–18.

Umbilicated, minutely striate, smooth, yellowish corneous above, lighter colored below; whorls 7, narrow, slowly increasing, the last expanding towards the aperture, aperture obliquely narrowly lunate. Diam. 12·5 mill.

*Sicily.*

The synonyms are *H. Philippi*, Testa, *H. Canini*, Benoit, and *H. Musignani*, Parr.

Var. ROSSMASSLERI, Westerlund.

Shell smaller, more widely umbilicated; whorls 6, more rapidly increasing. Diam. 10 mill.

*Sicily.*

H. PAZI, Bourg. Pl. 48, figs. 19–21.

Moderately profoundly umbilicated, subdiscoidal, thin, obliquely striulate, corneous-white below; whorls 7, regularly narrowly increasing, the last somewhat dilated and descending towards the aperture, slightly compressed on the base, aperture obliquely widely lunate. Diam. 11 mill.

*Sierra de Guadarrama, Spain.*

H. BALMEI, Shuttleworth. Pl. 48, figs. 22–24.

Umbilicated, depressed, closely striate above, somewhat shiny, corneous, smooth and whitish below; whorls 5, slowly

increasing, the last depressed, not descending, periphery very obsoletely angulated, suture profound. Diam. 12 mill.

*Isl. Sardinia.*

*H. Balmei*, Potiez et Michaud, is a true Helix and = *H. flavida*, Ziegler, but the shell which Pfeiffer and other authors have identified with that species, and which Shuttleworth has figured in his "Notitiæ" is a Hyalina, and so may continue to bear the name given it under a misapprehension. This rectification is one of the numerous debts which conchological science owes to the learning and patient research of the Marchioness Paulucci (Jour. de Conch., 6, 1879). Shuttleworth's MS. name *opaca* is a synonym.

H. OPPRESSA, Shuttleworth. Pl. 48, figs. 25–27.

Widely umbilicated, depressed, obliquely striate, somewhat shining, orange corneous; whorls 5, flattened above, more convex below, periphery angulated, aperture wide.

Diam. 11 mill.

*Isl. Sardinia.*

H. LIBYSONIS, Paulucci. Pl. 48, figs. 28–30.

Umbilicated, light yellowish corneous, discoidal, somewhat flattened, subopaque, rugosely striulate above, faintly striulate, somewhat shining and subtranslucent below, yellowish corneous; whorls 6, slowly enlarging, periphery obsoletely angulated.

Diam. 10 5 mill.

*Isle of Sardinia.*

This is *H. opaca* of Adami and Paulucci, not of Shuttleworth.

H. ALBINELLA, Paulucci. Pl. 48, figs. 31–33.

Moderately umbilicated, discoidal, diaphanous, opaque, fragile, somewhat flattened and irregularly striulate and subcrispate at the suture above, more convex and very shining below; corneous white or light corneous; whorls 6–7, regularly enlarging, the last wider, depressed rounded, suture deeply impressed, very narrowly margined. Diam. 13–16 mill.

*Isle of Sardinia.*

H. NEVILLIANA, Paulucci. Pl. 48, figs. 34–36.

Widely umbilicated, discoidal, diaphanous, shining, somewhat solid, corneous, convexly depressed and obsoletely striulate

above, whitish and planulate below; whorls 6–6½, the earlier ones slowly, the later ones more rapidly enlarging, suture impressed, periphery obsoletely angulated. Diam. 11·5–13 mill.

*Island of Sardinia.*

H. LUCIDA, Drap. Pl. 48, figs. 37–43, 46–56; Pl. 49, figs. 57–59.

Umbilicated, thin, irregularly impressed striate, pellucid, shining, smooth, yellowish corneous or greenish corneous, base becoming whitish; whorls 5½, suture impressed, last whorl much wider, subdepressed. Diam. 14 mill.

*Sweden*, *England*, *France*, *Germany*, *Italy*.

It is *H. Draparnaldi*, Beck, *H. nitida*, Drap., *H. cellaria*, Desh. (non Müller), and *H. nitens*, Alten.

Var. SELECTUS, Mousson.

Larger, umbilicus a little narrower, suture less impressed, whitish, corneous.

Var. ELATA, Borcherding. Fig. 41.

*North Western Germany.*

Var. SYRIACA, Kobelt. Figs. 42, 43.

More solid than the type, milky white below, last whorl compressed, aperture pearly shining. Diam. 17 mill.

*Syria.*

Var. SEPTENTRIONALIS, Bourg. Pl. 48, figs. 46–48.

Whorls more flattened above and more convex below.

*Northern France.*

The author describes it as a distinct species, but it appears to connect insensibly with the type.

Var. BLAUNERI, Shuttl. Figs. 51–53.

Whorls a little narrower, more distinctly striulate, aperture more oblong. Diam. 13 mill.

*Corsica*, *Nice*, *Provence*.

This is *H. lucida*, var. *compressa*, Dum.

Var. FARINESIANA, Bourg. Figs. 49, 50.

Whorls a little narrower, base declining towards the umbilicus. Diam. 15 mill.

*Brittany*, *Provence*, *Catalonia*, etc.

Differs but little from the preceding variety.

Var. NAVARRICA, Bourg. Pl. 49, figs. 57–59.

Differs from the type in being smaller, smoother, more shining, with more slowly increasing whorls and somewhat more convex base—which is not white. Diam. 12 mill.

*Northern Spain.*

Described as a distinct species, but Kobelt considers it a mere local variation of *H. lucida.*

Var. CALABRICA, Paulucci. Pl. 48, figs. 54–56.

Spire less elevated, last whorl more inflated below, the aperture somewhat oblique, elongate, descending.

*Calabria.*

H. LEDERI, Böttger. Pl. 48, figs. 44, 45.

Rather widely umbilicated, rather solid, somewhat shining, pellucid, light brownish corneous, base a little paler; whorls 6, regularly enlarging, suture impressed, subcrenulate, distinctly closely striate, last whorl somewhat planulate above and below, aperture widely lunate. Diam. 15 mill.

*Caucasus*, alt. 6500 ft.

Appears to connect with *H. lucida* through its variety *Syriaca;* in general it differs by its stronger striæ, more convex whorls, etc.

A. NITENS, Mich. Pl. 49, figs. 60–65.

Widely umbilicated, convexly depressed, thin, diaphanous, somewhat glabrous, yellowish above, whitish beneath; whorls $4\frac{1}{2}$, planulate, the last dilated and subdeflected in front, aperture wide, lunate-oval. Diam. 10–13 mill.

*France, Germany, Italy.*

It is *H. splendidula*, Ziegler, perhaps *H. nitida*, Risso.

Var. HIULCA, Jan. Figs. 63–65.

Shell larger, spire more convex, aperture larger, rounded. Diam. 15 mill.

*Lombardy.*

H. PUDIOSA, Ziegler, is a synonym.

Var. RESSMANNI, Westerlund.

More convex, last whorl with the base anteriorly tumid, aperture large, columellar margin strongly arcuate.

*Carinthia.*

H. DEILA, Bourg. Pl. 49, figs. 66–71.

Narrowly umbilicated, with impressed umbilical region, finely striate, moderately solid, fulvous olivaceous, olivaceous-white below; whorls 6, regularly slowly enlarging, aperture large, semi-rounded. Diam. 17 mill.

*Near Sebastopol, Crimea.*

*H. deila* (figs. 66–68) was described from a specimen not fully adult, 11 mill. diam.; subsequently Clessin describing an adult specimen, thought proper to give it a new name—*H. Krynicki* (figs. 69–71).

H. MARGARITACEA, Schmidt. Pl. 49, figs. 72–74.

Widely umbilicated, thin, rather smooth, bluish white, diaphanous; whorls $4\frac{1}{2}$, the last neither dilated nor deflected, mouth lunately rounded, peristome fragile, repand. Diam. 10·5 mill.

*Aschersleben, Germany, Denmark?*

Some conchologists have considered this an albino of *H. cellaria.*

H. SCOTOPHILA, Stefani. Pl. 49, figs. 75–77.

Umbilicus small, profound, shell subplanulate, rather solid, smooth, shining, pellucid, yellowish corneous above, whitish below, irregularly lightly striate; whorls 5, regularly enlarging, suture distinct, last whorl a little declined, scarcely or not at all descending at the aperture. Diam. 10·5 mill.

*Sienna.*

Is *H. Aquitanica* of Bonelli and Martens (non Charp.).

H. ERCICA, Benoit. Pl. 49, figs. 78–80.

Moderately umbilicated, polished, diaphanous, dark olivaceous corneous; whorls 5, suture impressed. Diam. 10 mill.

*Sicily, Calabria.*

Benoit first called it *H. glaberrima*—a name several times preoccupied.

H. PLANELLA, Pfr. Pl. 49, figs. 81–83.

Rather narrowly umbilicated, subdiscoidal, fragile, rugulosely striate, corneous, spire subplanate; whorls 5, suture impressed, last whorl wider, somewhat depressed, periphery obsoletely angulate, base somwhat plane. Diam. 10 mill.

*Sicily.*

H. NITIDULA, Drap. Pl. 49, figs. 84–86.

Widely umbilicated, globosely depressed, rather smooth, orange-brown above, whitish below, slightly shining; whorls $4\frac{1}{2}$, the last dilated in front. Diam. 9 mill.

*Europe.*

*H. nitida*, Friele, is a synonym, and *H. lucens*, Pult., and *H. Helmii*, Gilb., are slight varieties.

H. SIMPLICULA, Morelet. Pl. 49, figs. 87–89.

Moderately umbilicated, thin, striulate, scarcely shining, diaphanous, light corneous, whitish below; whorls 5, slowly enlarging, the last subangulated above, suture deeply impressed, columellar margin of aperture very short. Diam. 6·6 mill.

*Portugal.*

H. JACCETANICA, Bourg. Pl. 49, figs. 90–92.

Subperviously narrowly umbilicated, depressed, convex above, shining, fragile, pellucid, corneous, striulate above, more or less smooth below; whorls 5, slowly increasing, suture well impressed, last whorl scarcely larger, rounded below. Diam. 5·25 mill.

*Montserrat, Catalonia.*

Is perhaps a var. of *H. petronella*, Charp.

H. PURA, Alder. Pl. 49, figs. 93–97.

Moderately umbilicated, depressed, ashy-white to light corneous, crystalline, lightly striate, very obscurely so except at the suture; whorls 4, rapidly enlarging, suture moderate. Diam. 3–4 mill.

*Europe.*

With this species has been confounded the following one as well as several of its synonyms.

Var. LENTICULA, Held. (Figs. 95–97.) Shell corneous.

H. RADIATULA, Alder. Pl. 49, figs. 98–100.

Moderately umbilicated, depressed, pellucid, shining, closely lightly striulate, corneous; whorls 4, rapidly enlarging, the last depressed, suture submargined. Diam. 4–5 mill.

*Circumpolar, Europe, Northern Asia, North America from Oregon and Great Slave Lake to the Gulf of Mexico.*

One of the commonest species of middle Europe and the United States. It has been confounded with the preceding, but

differs in several particulars. Besides this, it has received a number of names, of which the following are most important:— *H. striatula*, Gray; *H. nitidosa*, Fér.; *H. electrina*, Gould (American specimens), and *H. viridula*, Menke, possibly. *H. Hammonis*, Ström., is the name adopted by Pfeiffer for this species, but its identification is doubtful. Dr. Gwyn Jeffreys calls the American form var. *albus*, but if entitled to varietal distinction it should bear Gould's name.

H. COURQUINI, Bourg. Pl. 49, figs. 1–3.

Perviously umbilicated, depressed, scarcely convex above, semipellucid, shining, smooth or very slightly striulate, light corneous; whorls 5, suture impressed, last whorl compressed-rounded, narrow, lip darker colored. Diam. 6 mill.

*Near Barcelona, Spain.*

H. EXCAVATA, Bean. Pl. 49, figs. 4, 5.

Widely perspectively umbilicated, thin, pellucid, distinctly striate, striæ becoming stronger at the suture, smoother below, orange corneous; whorls 5, convex, narrow, slowly enlarging, last whorl scarcely wider than the penultimate, suture impressed. Diam. 5 mill.

*England, Schleswig-Holstein.*

H. TRANSLUCIDA, Mortillet.

Moderately umbilicated, almost discoidal, slightly striate, thin, pellucid, shining, brownish; whorls 5, more distinctly striate near the impressed suture, the last whorl wider, base more convex. Diam. 8 mill.

*Near Trebizond.*

The work in which this is figured is, unfortunately, not accessible to me.

H. PLANARIA, Clessin. Pl. 49, figs. 6–8.

Narrowly umbilicated, almost discoidal, smooth, thin, diaphanous, shining; whorls 6, regularly enlarging, with impressed suture, last whorl not dilated, but double the width of the penultimate. Diam. 6 mill.

*Jalta, Crimea.*

H. BLIDAHENSIS, Bourg. Pl. 49, figs. 9–11.

Widely umbilicated, planulate, fragile, pellucid, shining, ful-

vous corneous, smooth, last whorl substriulate; whorls 5, suture well impressed, last whorl a little dilated. Diam. 9 mill.

*Near Blidah, Algeria.*

H. DURANDOIANA, Bourg. Pl. 49, figs. 12–14.

Umbilicus moderate, thin, pellucid, shining, narrowly striulate, striæ stronger at the suture, smoother and more shining below, corneous, lighter on the base; whorls 6, suture impressed, last whorl a little dilated and oblique at the aperture.

Diam. 11 mill.

*Prov. Constantine, Algeria.*

H. DUMONTIANA, Bourg. Pl. 49, figs. 15–17.

Widely umbilicated, fragile, diaphanous, shining, corneous, distantly narrowly costulate above, smoother below; whorls 4–4½, somewhat convex above, more convex below, rapidly enlarging, suture impressed, last whorl rounded.

Diam. 3 mill.

*Grande Chartreuse, Savoy.*

H. PETRONELLA, Charp. Pl. 49, fig. 18.

Moderately umbilicated, globosely depressed, greenish white, vitreous, shining, closely regularly costulate-striate, smooth below; whorls 4½–5, slowly enlarging, suture impressed, margined, last whorl rounded, a little dilated and subplanate in front, not descending. Diam. 4·5–5·5 mill.

*Alps of Switzerland, Norway.*

It is *H. viridula*, Wallenb.

Var. SUBNITIDOSA, Mousson.

Superior striæ less distinct, light corneous white, last whorl well rounded.

*Russian Transcaucasia.*

H. GERFALCHENSIS, Pecchioli. Pl. 50, figs. 19–21.

Widely umbilicated, umbilical region concave, striate, diaphanous, more convex below, greenish, fulvous; whorls 4, with deep suture, regularly enlarging. Diam. 6·5–7 mill.

*Near Gerfalco, Italy.*

First described by Pecchioli as *H. Mortilleti*, a name preoccupied by Stabile. Is perhaps a young *H. olivetorum*.

H. CAMELINA, Bourg. Pl. 50, figs. 22–24.

Narrowly umbilicated, somewhat lenticular, pellucid, shining,

elegantly striate, striæ stronger at suture, corneous; whorls 6, slowly enlarging, the last rounded, suture impressed.

Diam. 10 mill. *Baalbek, Syria.*

*H. frondosula*, Mousson, is a synonym; it occurs in the neighborhood of Constantinople.

H. HEMIPSORICA, Morelet. Pl. 50, figs. 25–29.

Moderately umbilicated, pellucid, shining, rugosely striulate, yellowish corneous; whorls 6, planulate, with profound suture, regularly slowly enlarging, last whorl compressed below; aperture wide. Diam. 8 mill.

*Bona, Algeria.*

Var. PSATURA, Bourg. Figs. 28, 29.

Whorls enlarging more slowly, striæ more distinct, umbilicus a little wider.

H. EURABDOTA, Bourg. Pl. 50, figs. 30–32.

Widely umbilicated, somewhat discoidal, fragile, pellucid, minutely pustulosely striate, smooth and shining below, fulvous corneous, base milky white; whorls 5, regularly slowly enlarging, suture profound, last whorl rounded, not descending.

Diam. 6·5 mill.

*Near Bona, Algiers.*

H. CELLARIA, Müller. Pl. 50, figs. 33–52.

Moderately umbilicated, depressed, shining, pellucid, scarcely striate, light greenish corneous, whitish below; whorls 6, flattened, the last depressed, aperture obliquely widely lunate.

Diam. 13 mill.

*Middle Europe, Azores, Canaries, Madeira, United States, Australia, New Zealand.*

A common species (introduced) in the Atlantic sea-board cities of the United States, the *H. glaphyra* of Say. Other synonyms are *H. lucida*, Pult., *H. nitens*, Mat. and Rack., *H. rubroflava*, Chier., *H. corneofulva*, Pfr. (figs. 36–38), *New Zealand* (introduced), *H. Sydneyensis*, Cox (fig. 39), *Australia* (introduced).

Var. SIEVERSI, Böttger. Figs. 40, 41.

Smaller, umbilicus narrower, base flatter. Diam. 7 mill.

*Transcaucasia.*

Var. Villæ, Mortillet. Figs. 42–44.

A larger, flatter form, from southern slopes of the Alps, Lombardy and Tyrol. It is *H. Mortilleti* and *H. eugyra* of Stabile.

Var. Sicula, Rossm. Figs. 45, 46.

Of normal form, but somewhat larger.

*Sicily.*

Var. sancta, Bourg. Figs. 47, 49.

Shell larger, more deeply colored and less pellucid; whorls more convex, the last less depressed. Diam. 15 mill.

*Syria, Palestine.*

Var. Canariæ, Mousson. Figs. 50–52.

Spire a little less depressed, umbilicus slightly wider, last whorl scarcely perceptibly more broadly developed.

*Canary Islands.*

H. chelia, Bourg. Pl. 50, figs. 53–55.

Umbilicus moderate, somewhat depressed, shining, subpellucid, elegantly striate above, corneous, lighter below; whorls 6, slightly convex, regularly enlarging, the last rounded, slightly dilated, a little compressed below, suture profound. Diam. 15 mill.

*Algiers.*

Distinguished from *H. cellaria* by the sculpture.

H. Pilatica, Bourg. Pl. 50, figs. 56–58.

Moderately umbilicated, plane above, diaphanous, shining, milky white, very smooth; whorls 4½–5, flattened above, rounded below, the last whorl somewhat dilated in front. Diam. 4 mill.

*Mt. Pilatus, Switzerland, Savoy, Bordeaux, France.*

Much smaller than *H. cellaria*, the last whorl more rounded below, and the aperture more rotund. According to Clessin and Westerlund this is *H. clara*, Held, which has priority.

H. Pictonica, Bourg. Pl. 50, figs. 59–61.

Rather widely umbilicated, lenticular, shining, pellucid, corneous above, light greenish white below, nearly smooth, but striate at the suture; whorls 6, suture impressed, whorls slowly enlarging, the last slightly larger than the penultimate, a little compressed below the aperture. Diam. 12·5 mill.

*France.*

Differs from *H. cellaria* in its more slowly increasing whorls, and less developed last whorl, also in color and striæ.

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H. De Natale, Benoit. Pl. 51, figs. 76–78.

Openly umbilicated, discoidal, plane above, with very narrow volutions, very minutely striulate and with microscopic spiral lines, subopaque, yellowish corneous; whorls 7, with channeled suture, last whorl much larger, slopingly depressed to a subbasal peripheral angle, aperture subtriangularly lunate.

Diam. 13 mill.

*Sicily*, *Pisa*, etc.

*H. Uzielli*, Issel = *H. Villæ*, Bonelli (non Mort.), is a synonym.

H. Pomeliana, Bourg. Pl. 50, figs. 62–64.

Umbilicus moderate, shell discoidal, plane above, thin, subdiaphanous, narrowly striate, greenish corneous; whorls 6, narrow, suture channeled. Diam. 10 mill.

*Bona*, *Algeria*.

H. circumlineata, Küster. Pl. 50, figs. 65–67.

Widely umbilicated, subdiscoidal, thin, hyaline, with close spiral striæ above; whorls 5, narrow, suture deeply impressed.

Diam. 5·5 mill.

*Dalmatia*.

Very distinct by its spiral sculpture.

H. Zapateri, Hidalgo. Pl. 50, figs. 68–70.

Umbilicus moderate, shell thin, pellucid, somewhat shining, almost smooth, corneous, suture rather deep; whorls $5\frac{1}{2}$, narrow, slowly enlarging, the last very obtusely angulated, base convex, subplanulate. Diam. 10 mill.

*Belalcazar*, *Spain*.

Partakes somewhat of the characters of a Patula.

H. Isserica, Letourneux. Pl. 50, figs. 71–73.

Discoidal, with carinated periphery, planulate or slightly concave above, more convex, with moderate umbilicus below, fragile, subpellucid, narrowly striate, corneous above, becoming milky white on the base; whorls 6, suture impressed, whorls narrow, slowly enlarging, the last much dilated, convexly declining above, convex below, aperture angularly lunate.

Diam. 14·5 mill.

*Kabylia*.

H. subplicatula, Bourg. Pl. 50, figs. 74, 75.

Rather narrowly umbilicated, depressed, pellucid, shining,

brownish corneous, very minutely plicatulate, the plicæ evanescent in last whorl; whorls $5\frac{1}{2}$, nearly planate above, last whorl large, rounded, suture impressed. Diam. 10 mill.

*Algiers, Ruins of Carthage.*

H. SEMICOSTULATA, Beck. Pl. 51, fig. 2.

Shell umbilicated, depressed, convex below, subdiscoidal, solid horny, livid ash color, shining, thinly striated above, smooth below; whorls 5, rather flattened. Diam. 12 mill.

*Portugal* (Beck), *Grand Canary I.* (Reeve).

A problematical species, the identification and description by Reeve from a specimen in the Cumingian collection, but his habitat probably incorrect. The Portuguese habitat, also, has not been confirmed.

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*Unfigured and Undetermined Species.*

| | |
|---|---|
| H. PERSPECTIVA, Blanc. and Var. PARMA, Westerl. | *Otranto, Italy.* |
| H. TANORA, Servain. | *Bosnia.* |
| H. BROCCHII, Calcara. (Juvenile) | *Sicily.* |
| H. MARIANNÆ, Westerl. | *Caucasus.* |
| H. LENOPSILIUS, Letourneux. | *Algiers, Kabylia.* |
| H. MAURICETI, Bourg. | *Vendee, France.* |
| H. MINUTA, Villa. | *Etruria.* |
| H. DEBETTANA, Adami. | *Italy.* |
| H. KRALICKI, Letourneux. | *Southern France, Spain.* |
| H. DAUTEZI, Kobelt. | *Gibraltar.* |
| H. KOUTAISIANA, Mousson. | *Russian Transcaucasia.* |
| H. CARMELIENSIS, Pfr. | *Mount Carmel.* |
| H. APOCRYPTIA, Fagot. | *Catalonia.* |
| H. FODERIANA, Bourg. | *Mentone, France.* |
| H. BLONDIANA, Bourg. | *So. Coast of France.* |
| H. DUTAILLYANA, Mabille. | *Switzerland.* |
| H. OLEARIS, Westerl. | *Sweden, Denmark.* |
| H. JOURDHEUILI, Ray. | *So. France, Spain.* |
| H. SUBNITENS, Bourg. | *France.* |
| H. CASPIA, Böttger. | *Talysch, Caspian Region.* |
| H. CALPICA, Kobelt. | *Gibraltar.* |
| H. ARABIÆ, Fagot. | *So. France, Catalonia.* |

H. MACEANA, Bourg., and Var. PLANORBIOIDES, Nevill. *So. France.*

H. SUBGLABRA, Bourg. *Brittany.*

H. ARCASIANA, Servain. *So. France, Spain, Portugal.*

H. PEREGRINA, Aradas et Maggiore. *Sicily.*

H. HARLEI, Fagot. *So. France, Catalonia.*

H. HELVETICA, Blum. *Switzerland.*

H. OSCARI, Kimakovicz. *Transylvania.*

H. STÆCHADICA, Bourg. *French Pyrenees.*

H. UDVARICA, Servain. *Lac Balaton, Hungary.*

*** *Species of Madeira, Azores, Canary Islands and West Africa.*

H. ATLANTICA, Morelet et Drouet. Pl. 51, figs. 79–81.

Imperforate, moderately solid, lightly striulate, shining, pellucid, fulvous corneous, suture scarcely margined; whorls nearly 6, regularly enlarging, the last rounded, not descending, base excavated in the middle. Diam. 8 mill.

*Azores.*

Var. MINOR. Diam. 6 mill. *Fayal.*

Var. SPECTABILIS. Suture peculiarly margined. *Sta Maria.*

H. MIGUELINA, Pfr. Pl. 51, figs. 82–84.

Perforate, depressed, thin, striulate, pellucid, very shining, corneous, with rather indistinct distant fulvous strigations; whorls 5½, the last wider, not descending, depressed, rounded. Diam. 15 mill.

*Azores.*

*H. Vidaliana*, Morelet and Drouet (figured), is a synonym.

Var. UNICOLOR. Unicolored, hyaline.

Var. MINOR. Whorls 5½, diam. 10 mill.

H. LENIS, Shuttleworth. Pl. 51, figs. 85–87.

Umbilicus rather narrow, shell depressed, smooth, closely striated, a little shining, greenish corneous; whorls 4½, moderately increasing, the last scarcely dilated anteriorly, not descending. Diam. 10·5 mill.

*Ins. Palma, Canaries.*

H. SCINTILLA, Lowe. Pl. 51, figs. 88–90.

Umbilicus wide, spiral; whorls 5, moderately enlarging, thin, shining, pellucid, greenish vitreous. Diam. 2 mill.

*Madeira.*

A *H. crystallina* in miniature, but with larger umbilicus.

H. FESTINANS, Shuttl. Pl. 51, figs. 91, 92.

Moderately, perspectively umbilicated, depressed, thin, striulate, pellucid, slightly shining, yellowish corneous, spire subplane, suture profound; whorls $5\frac{1}{2}$, convex, very slowly enlarging, base flattened and more shining. Diam 5 mill.

*Ins. Palma, Canaries.*

H. VOLUTELLA, Pfr. Pl. 51, figs. 93–95.

Umbilicus rather narrow, shell subdiscoidal, thin, striulate, light corneous, with rather close chestnut strigations; whorls 5, slowly enlarging. Diam. 7 mill.

*Azores.*

*H. brumalis*, Morel. et Drouet, is a synonym.

H. CIRCUMSESSA, Shuttl. Pl. 51, figs. 96–98.

Widely perspectively umbilicated, reddish corneous, lightly plicate-striate, with spiral lines; whorls $4\frac{1}{2}$, convex, slowly increasing, suture profound. Diam. 9 mill.

*Ins. Teneriffe and Palma.*

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*Unfigured Species.*

| | |
|---|---|
| H. OSORIENSIS, Wollaston. | *Grand Canary I.* |
| H. THEMERA, Mabille. | *Grand Canary I.* |
| H. ROCHEBRUNEI, Mabille. | *Ins. Gomera.* |
| H. INERMIS, Morelet. | *Sierra Leone.* |

*** *Species Inhabiting the United States.*

G. Retinalla Fischer HBBaker

H. INDENTATA, Say. Pl. 51, figs. 99–1.

Imperforate, flattened, thin, pellucid, epidermis highly polished, yellowish corneous; whorls more than four, rapidly enlarging, with regular radiating impressed lines, body whorl expanding towards the aperture, suture well impressed. Diam. 5 mill.

*United States, Canada, Maine to Florida, and Texas, Westward to Utah, St. Domingo, Porto Rico.*

A variety occurs with the umbilical region narrowly perforated. *H. subrupicola*, Dall., is a synonym.

G. Pristiloma Ancey HBBaker

H. CHERSINELLA, Dall. Pl. 51, figs. 43–45.

Narrowly perforated, depressed, transparent, very light horn-color, shining, with distant incremental wrinkles; whorls 4, scarcely convex, the last depressed globose. Diam. 3 mill.

*Big Trees, Calaveras Co., Cal.*

H. SCULPTILIS, Bland. Pl. 51, figs. 3–4.

Scarcely perforate, depressed, pale horn-color above, lighter below, with regular impressed striæ, shining; whorls 7, planulate, last whorl rapidly enlarging, flattened below, and a little excavated in the umbilical region, perforation almost entirely covered by the narrowly reflected columellar lip. Diam. 7–12 mill.

*North Carolina, Tennessee, Alabama, Texas.*

H. ELLIOTTI, Redfield. Pl. 51, figs. 5, 6.

Narrowly umbilicated, finely striate, greenish horn-color, hardly translucent, shining and smoother beneath; whorls 5, the last sometimes very slightly depressed at the aperture, suture deeply impressed, peristome a little sinuate, acute but thickened within. Diam. 9 mill.

*Mountains of Georgia, Tennessee, N. Carolina and West Virginia.*

H. WHITNEYI, Newcomb. Pl. 51, figs. 7, 8.

Umbilicated, subplanate, thin, smooth, scarcely striate, shining, smoky horn-color; whorls 4, the last planate above and below. Diam. 5·5 mill.

*Near Lake Tahoe, California.*

H. ARBOREA, Say. Pl. 51, figs. 9–17.

Umbilicated, depressed, thin, pellucid, smooth, shining, yellowish corneous, or amber-colored; whorls 4–5, with very minute microscopic oblique striæ, umbilical region indented. Diam. 5 mill.

*Labrador to Florida and Texas, Great Slave Lake, Montana, Nevada, British Columbia to San Diego, Cal.;* also *Cuba, Haiti,* and *Guadeloupe, W. I.*

The Florida and West Indian specimens have received the name of *H. ottonis*, Pfr. (figs. 12–14), and those of California have been called *H. Breweri*, Newcomb (figs. 15–17).

H. WHEATLEYI, Bland. Pl. 51, figs. 18, 19.

Umbilicated, depressed, thin, shining, pellucid, brownish horn-color, finely striated; spire subplanulate, suture slightly impressed; whorls little convex, the last rapidly increasing, more convex on the base, scarcely descending at the aperture, umbilicus rather wide, margins of peristome approximating, joined by a thin callus. Diam. 5 mill.

*East Tennessee, Clingham's Peak, N. C.*

Specimens collected at the latter locality are very much larger than the type, measuring 9 mill. diam. The shell is most nearly allied to *H. radiatula.* It is more depressed, with wider umbilicus than *H. arborea.*

H. PETROPHILA, Bland. Pl. 51, figs. 20, 21.

Broadly umbilicated, depressed, subglobose, thin, shining, translucent, pale corneous, irregularly striated, suture moderately impressed; whorls $5\frac{1}{2}$–6, rather convex, the last more convex, not descending; umbilicus widely excavated; peristome simple, somewhat thickened, often rose-colored. Diam. 6 mill.

*Eastern Tennessee, Western North Carolina and Georgia.*

Allied to *H. arborea*, but differing somewhat in color, with an additional whorl, more distinctly striate, and with much wider umbilicus.

H. BINNEYANA, Morse. Pl. 51, fig. 22.

Umbilicated, subglobose, transparent, almost colorless, shining, smooth, with microscopic wrinkles of growth and still more delicate oblique wrinkles; whorls about 4, rounded, gradully enlarging, the last globose, broadly umbilicated below; aperture oblique, subcircular, large. Diam. 4 mill.

*Maine, Massachusetts, Vermont, Michigan.*

In 1865 I proposed *H. Morsei* for this species, Morse's name being preoccupied in Helix by Pfeiffer; as a Hyalina the original name can stand.

H. CAPSELLA, Gould. Pl. 51, figs. 23–25.

Umbilicus small, deep, shell planorboid, pellucid, shining, amber-colored or yellowish corneous; whorls about $6\frac{1}{2}$, narrow, flattened, with distant, impressed radiating striæ, suture margined; aperture narrowly semilunar. Diam. 5 mill.

*Mountains of East Tennessee and West Virginia.*

H. PLACENTULA, Shuttleworth. Pl. 51, figs. 26, 27.

Rather widely umbilicated, somewhat depressed, very shining, with irregular distant impressed striæ, diaphanous, horn-colored; whorls 7, narrow, gradually increasing, scarcely convex, the last convex below, subexcavated around the umbilicus.

Diam. 7·5 mill.

*Mts. of E. Tennessee, Kentucky, Lexington, Va., Hot Springs, Arkansas.*

H. LAWI, W. G. Binney. Pl. 51, figs. 28, 29.

Until recently confounded by Mr. Binney with *H. placentula;* he distinguishes it as larger, more deeply and widely umbilicated, and with a more elevated spire. Diam. 9 mill.

*Mts. of East Tennessee.*

*** *West Indian Species.*

H. EFFUSA, Pfr. Pl. 51, figs. 30–32.

Narrowly perforate, rather thin, closely lightly striated, hyaline-white, spire a little convex, suture deeply impressed; whorls 6, rather narrow, slowly increasing, the last not descending, base inflated, smoother; aperture subvertical, irregularly lunar, at the base of the columella effused. Diam. 11·5 mill.

*Haiti.*

Var. MAJOR, Weinland. Diam. 15 mill.

H. INCISA, Pfr. Pl. 51, figs. 33–35.

Scarcely perforate, depressed, subdiscoidal, rather thin, shining, greenish corneous, spire plane, apex minute, suture impressed; whorls $4\frac{1}{2}$, flattened, rapidly increasing, subdistantly striate, closer towards the aperture, aperture obliquely lunar. Diam. 8·6 mill.

*Ins. Barbados.*

H. ALBICANS, Pfr. Pl. 51, figs. 36–38.

Narrowly perforate, striulate, nearly smooth, shining, hyaline-white; spire but little elevated, suture impressed, margined; whorls 5, rather plane, slowly increasing, the last not descending, subrounded, impressed around the perforation, aperture vertical, widely lunar. Diam. 8 mill.

*Jamaica.*

H. NITENSOIDES, d'Orb. Pl. 51, figs. 39–41.

Widely umbilicated, thin, shining, pellucid, light greenish corneous; whorls 4½, the last subdepressed, not descending; aperture almost diagonal, lunately rounded. Diam. 10 mill.

*Cuba.*

The single specimen in the d'Orbigny collection differs from the figure in having a narrower umbilicus and more declining columella, and can scarcely be distinguished from the true *H. alliaria.*

H. IMPLICANS, Guppy. Pl. 51, fig. 42.

Shell minute, discoidal, openly and widely umbilicated, whitish, smooth, pellucid, shining; whorls 4, depressed, plane above, slowly increasing, spire plane, aperture suborbicular.

Diam. 2 mill. *I. Trinidad, West Indies.*

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*Unfigured Species.*

H. SMITHIANA, Pfr. *Mt. Platon, Ins. Haiti.*

H. BRYODES, Shuttlew. *Porto Rico.*

*** *Mexican, Central and South American Species.*

H. SAXATILIS, Couthouy. Pl. 52, figs. 49, 50.

Umbilicus moderate, shell somewhat flattened above, convex below, shining, lightly striate, greenish corneous; whorls 4, moderately increasing, suture channeled, aperture large, suborbicular peristome nearly continuous. Diam. 6 mill.

*Tierra del Fuego.*

H. ORDINARIA, Smith. Pl. 52, figs. 51, 52.

Umbilicus rather wide, exhibiting two volutions, shell thin, glossy, transparent, discoidal; whorls 3½, convex, with channeled and margined suture, last whorl rounded at the periphery, aperture large, lunate. Diam. 3 mill.

*Tom Bay, Patagonia.*

"Apparently distinct, although a near relation to *H. saxatilis* of Couthouy."

H. INSIGNIS, d'Orb. Pl. 51, figs. 46–48.

Moderately umbilicated, very thin, diaphanous, shining, scarcely striulate, yellowish corneous; whorls 4½, with suture impressed, regularly increasing, the last double the width of the

penultimate, not descending but subdilated in front, periphery obtusely subangulated, base more convex. Diam. 11 mill.

*Columbia* (Orb.), *Coquimbo*, *Chili* (Paz.).

H. Beskei, Dunker. Pl. 52, fig. 53.

Narrowly umbilicated, smooth, with impressed radiating lines, very shining, corneous yellow; whorls $5\frac{1}{2}$, regularly increasing, aperture rather widely, obliquely lunar. Diam. 7 mill.

*Brazil.*

H. Surinamensis, Pfr. Pl. 52, figs. 54–56.

Perforate, depressed, thin, very lightly striulate, nearly smooth, shining, pellucid, greenish hyaline, suture impressed, very narrowly thread-margined; whorls 4, regularly increasing, the last a little depressed, periphery rounded. Diam. 6 mill.

*Parimaribo*, *Surinam.*

H. Santanaensis, Pfr. Pl. 52, fig. 57.

Umbilicated, thin, striulate, shining, pellucid, yellowish hyaline, spire very shortly conoidal, suture profound; whorls 5, convex, narrow, the last scarcely wider, not descending, umbilicus conical, about one-third the diameter. Diam. 4·5 mill.

*Santa Ana*, *N. Granada.*

H. Hondana, Pfr. Pl. 52, fig. 58.

Broadly, perspectively umbilicated, convexly depressed, striulate, light corneous yellow; whorls 6, slightly convex, slowly increasing, the last not descending, depressed-rounded, aperture small, oblique, rounded-lunar. Diam. 7·75 mill.

*Honda*, *New Granada.*

H. Tehuantepecensis, Crosse and Fischer. Pl. 52, figs. 59, 60.

Narrowly umbilicated, subdepressed, thin, shining, very lightly striulate, smoothish, light greenish white, hyaline, suture impressed; whorls 4, the last not descending, subrotund, base planate, aperture almost diagonal. Diam. 3·5 mill.

*Tehuantepec*, *Mexico.*

H. permodesta, Strebel. Pl. 52, figs. 61, 62.

Openly moderately umbilicated, somewhat solid, translucent, shining, light corneous yellow, slightly striulate; whorls $4\frac{1}{4}$, moderately increasing. *Mirador*, *Mexico.*

One of the two specimens had a small thickening on the inner side of the lip.

H. BLAKEANA, Tate. Pl. 52, figs. 63–65.

Umbilicus moderate, profound, shell semitransparent, shining, greenish white, regularly concentrically costulate, the interstices obscurely striate; whorls 4, rounded, rapidly increasing, suture profoundly impressed. Diam. 3 mill.

*Nicaragua.*

H. GUAYAQUILENSIS, Pfr. Pl. 52, figs. 66–68.

Widely umbilicated, depressed, discoidal, rather thin, striulate, light corneous yellow, diaphanous, spire plane; whorls 5, somewhat flattened, slowly increasing, the last rounded, not descending, with obscure opaque white fasciæ on the base.

Diam. 10 mill.

*Guayaquil.*

H. DECOLORATA, Drouet. Pl. 52, figs. 69–71.

Moderately umbilicated, orbicularly depressed, smooth, very shining, diaphanous, light corneous; whorls 5–6, depressed, with superficial suture. Diam. 6–7 mill.

*Cayenne.*

H. SUBHYALINA, Pfr. Pl. 52, figs. 72–74.

Moderately umbilicated, discoidal, rather thin, smooth, shining, whitish hyaline, suture slightly impressed; whorls $3\frac{1}{2}$, subplane above, the last subdepressed, rounded, not descending in front.

Diam. 2·5 mill.

*Near Vera Cruz, Mexico.*

H. MEDIOCRIS, Pfr. Pl. 52, fig. 75.

Scarcely subperforate, depressed, subdiscoidal, thin, smooth, whitish hyaline, spire subplane, suture impressed, submargined; whorls 4, slightly convex, moderately increasing, the last subdilated in front, rounded, base subexcavated, aperture vertical, widely lunar. Diam. 5 mill.

*Sta. Ana, N. Granada.*

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*Unfigured Species.*

H. PAUCILIRATA, and H. NITIDOPSIS, Morelet. *Guatemala.*

H. ANTONI, Pfr. *Panama.*

H. OCHSENII, Phil. *Valdivia, Chili.*

*** *New Caledonian Species.*

H. SUBNITENS, Gassies. Pl. 52, figs. 76, 77.

Narrowly umbilicated, minute, discoidal, shining, very lightly striulate, brownish corneous; whorls 4, subhorizontal, flattened, suture well impressed, last whorl not descending.

Diam. 2–2·5 mill.

*New Caledonia.*

H. HAMELIANA, Crosse. Pl. 52, figs. 78, 79.

Narrowly umbilicated, depressed, discoidal, lenticular, thin, translucent, smooth, shining, reddish corneous, suture impressed; whorls $3\frac{1}{2}$, the last large, base planate, aperture subhorizontal, brownish within. Diam. 3 mill.

*New Caledonia.*

H. NOUMEENSIS, Crosse. Pl. 52, figs. 80–81.

Shell with moderate umbilicus, depressed, discoidal, thin, fragile, scarcely striulate, dark violaceous brown, spire planate, the apex a little concave, suture impressed; whorls 6, slowly increasing, the last inconspicuously angulated, aperture brown.

Diam. 6 mill.

*Noumea, N. Caledonia.*

H. XANTHOCHROA, Crosse. Pl. 52, figs. 82, 83.

Widely umbilicated, depressed, planorbiform, smooth, corneous yellow, apex concave, blackish; whorls 7, slowly increasing, with deep suture, the last rounded, with flattened base.

Diam. 3·5 mill.

*Hab. unknown.*

H. PERROQUINIANA, Crosse. Pl. 52, figs. 84, 85.

Narrowly umbilicated, depressed, planulate, thin, translucent, a little shining, olivaceous, spire depressed, the apex barely prominent, suture deep; whorls 4, regularly increasing, the last large, depressed, rounded, base lighter colored, aperture still lighter. Diam. 7·75 mill.

*South Bay, N. Caledonia.*

A variety has been described, lighter colored, a little larger, the peristome whitish, the basal and columellar lips a little thickened within. Diam. .9 mill.

H. BOURAILENSIS, Gassies. Pl. 52, figs. 86, 87.

Very narrowly umbilicated, convex, thinly striulate, yellowish

corneous or brownish, translucent, spire convex, apex scarcely elevated, suture deep; whorls 4½, regularly increasing, the last not descending. Diam. 4 mill.

*Bourail, N. Caledonia.*

H. Koutoumensis, Gassies. Pl. 52, fig. 88.

Moderately, deeply umbilicated, sublenticular, convex, very minutely striate, yellowish corneous, obsoletely brown-zoned; whorls 4, regularly increasing, last whorl descending, scarcely larger than the penultimate, suture moderate. Diam. 2 5 mill.

*Ins. Koutoumo, N. Caledonia.*

Subfossil.

H. Desmazuresi, Crosse. Pl. 52, fig. 89.

Imperforate or scarcely subrimate, thin, translucent, smooth, shining, brownish corneous, suture submargined, impressed; whorls 4½, regularly increasing, the last subrotund, somewhat flattened on the base. Diam. 8·5 mill.

*Noumea, N. Caledonia.*

H. Savesi, Gassies. Pl. 52, figs. 90, 91.

Scarcely subrimate, orbicularly depressed, thin, translucent, smooth, shining, orange-corneous, suture submargined; whorls 4–5, regularly increasing, subrotund, aperture light brownish. Diam. 10 mill.

*Thio, N. Caledonia.*

H. Artensis, Souverbie. Pl. 52, figs. 92, 93.

Narrowly perforate, orbicularly depressed, thin, subpellucid, orange-corneous, lightly obliquely striulate, subplicatulate towards the suture, very thinly spirally striulate above, suture simple, submargined; whorls 4½, regularly increasing, the last subrotund, periphery obtusely subangulate, base more convex. Diam. 7·5 mill.

*Ins. Art, N. Caledonia.*

*** *Australian and New Zealand Species.*

H. Georgiana, Quoy. Pl. 52, figs. 94–96.

Umbilicated, subdiscoidal, thin, fragile, translucent, brownish yellow, thinly striate above, smooth below; whorls 4½, the last obtusely subangulated, depressed in front. Diam. 10·5 mill.

*Port George, Australia.*

H. LYNDHURSTENSIS, Cox. Pl. 52, figs. 97, 98.

Widely umbilicated, pellucid, depressed, obsoletely striate, smooth, shining, brownish yellow above, yellowish below; whorls 4–5, the last dilated, aperture lunate circular. Diam. 4 mill.

*Lyndhurst, Sydney, Australia.*

H. SUBANGULATA, Pfr. Pl. 52. fig. 99.

Moderately umbilicated, rather solid, striulate, scarcely shining, waxy yellow, with a narrow chestnut band near the suture, and two or three somewhat broader ones lower down; whorls $4\frac{1}{2}$, slightly convex, the last not descending, periphery subangulate, base rather flat. Diam. 17 mill.

*Van Diemen's Land.*

H. ALBUMENOIDEA, Cox. Pl. 52, figs. 1, 2.

Narrowly umbilicated, planulate, thin, opaque, opalescent, bluish white, smooth, not shining, suture impressed, slightly margined; whorls $4\frac{1}{2}$–5, rounded, the last but little wider than the penultimate, not descending, base convex. Diam, 5 mill.

*Flinder's Range, So. Australia.*

H. SUBRUGATA, Pfr. Pl. 52, fig. 3.

Subperforate, depressed turbinate, thin, distantly rugulosely striate, pellucid, light corneous; whorls $5\frac{1}{2}$–6, somewhat flattened, periphery angulated, base convex, smooth. Diam. 9 mill.

*New South Wales.*

*H. Clarencensis* and *H. Graftonensis*, Cox, are synonyms.

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*Unfigured Species.*

H. DUCTILIS, Pfr. *Drayton Range, N. Australia.*
H. NELSONENSIS, Brazier. *Mt. Nelson, Tasmania.*
H. DYERI, H. ROBLINI, H. KERSHAWI, of Petterd. *Tasmania.*

*** *Species of New Hebrides, Viti Is., etc.*

H. ANNATONENSIS, Pfr. Pl. 52, fig. 100.

Moderately umbilicated, smoothish, shining, pellucid, corneous-yellow; whorls 5, slightly convex, periphery rounded, base convex. Diam. 10·5 mill.

*Ins. Annaton, N. Hebrides.*

H. CIMEX, Pfr. Pl. 52, fig. 4.

Rather widely umbilicated, discoidal, thin, lightly thread-striated, not shining, light corneous; whorls 5, somewhat convex, slowly increasing, aperture oblique, small, rounded lunar.

Diam. 3 mill.

*Lord Howe's Isl., N. Hebrides.*

H. KAWAIENSIS, Pfr. Pl. 52, fig. 5.

Widely umbilicated, convexly depressed, rather thin, smoothish, waxy, brownish horny, spire convex, suture impressed; whorls $4\frac{1}{2}$, somewhat convex, slowly increasing, the last narrow, not descending, aperture lunately rounded. Diam. 3·25 mill.

*Kaui, Sandwich Is.*

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*Unfigured Species.*

H. RETARDATA, Cox. *Aneiteum, N. Hebrides.*

H. PLICOSTRIATA, Mousson. *Fiji Is.*

H. ARUENSIS, Tapparone-Canefri. *Ins. Aru, Papuan Is.*

*** *Asiatic and Japanese Species.*

H. AMBOINENSIS, Martens. Pl. 52, figs. 6–8.

Narrowly umbilicated, depressed, obliquely striulate, shining, orange corneous, a little lighter below, suture whitish; whorls 5, somewhat convex, the last rounded; aperture subdiagonal, obliquely lunate. Diam. 15 mill.

*Ins. Buru, Amboina* and *Banda-Nera.*

H. MAMILLARIS, Heude. Pl. 52, figs. 9–11.

Narrowly umbilicated, smooth, shining, very lightly striulate, light fulvous above, whitish below, spire depressed; whorls 6, the first mamillarly elevated, the last large, suture plane.

Diam. 13·5 mill.

*Hounan, China.*

H. SCROBICULATA, Gredler. Pl. 53, figs. 12–14.

Depressed orbicular, moderately umbilicated, thin, closely striate, decussated by spiral lines above, with a few lines around the umbilicus, otherwise obsolete on the base; yellowish waxy above, greenish yellow and a little shining below; whorls 5, the last widening towards the aperture, suture deep, whitish.

Diam. 20 mill.

*Hounan, China.*

H. PERDITA, Desh. Pl. 53, figs. 15–17.

Umbilicus moderate, shell subdiscoidal, shining, light yellowish, hyaline; whorls 4, narrow, slowly increasing, a little flattened on the base. Diam. 3 mill.

*Near Pekin, and Eastern Mongolia.*

H. DOENITZII, Reinh. Pl. 53, figs. 18–20.

Narrowly perforate, thin, polished, very lightly striulate, amber-colored, whitish below; whorls $5\frac{1}{2}$, slightly convex, regularly increasing, suture white-margined. Diam. 7 mill.

*Japan.*

H. RADIATELLA, Reinhardt. Pl. 53, figs. 21–23.

Narrowly perspectively umbilicated, fulvous corneous, shining, radiately striate; whorls $3\frac{1}{2}$, rapidly increasing, the last double the width of the penultimate, suture narrowly margined. Diam. 3 mill.

*Japan.*

H. YESSOENSIS, Reinh. Pl. 53, figs. 24–26.

Perspectively umbilicated, corneous, somewhat shining, irregularly striated; whorls $4\frac{1}{2}$–5, a little convex, with deep suture, periphery subangulated, base more convex. Diam. 6·75 mill.

*Japan.*

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*Unfigured Species.*

H. SINULABRIS, Martens. *Siam.*

H. MITIS, Pfr. *Lao Mts., Cambodia.*

H. ARCTISPIRA and H. OBTUSA, Westerlund. *Japan.*

[Section ZONITOIDES, Lehmann, 1864.

H. NITIDA, Müller. Pl. 53, figs. 27, 28, 29–32.

Moderately umbilicated, thin, shining, yellowish corneous, delicately striate, pellucid; whorls 5, a little convex, rather slowly increasing, periphery compressed and almost obtusely angulated, base excavated around the umbilicus. Diam. 7·5 mill.

*Europe*; *United States, Japan and Australia* (*introduced*).

The synonyms are *H. hydrophila*, Ingalls (for American specimens); *H. tenuis*, Dillw.? *H. succinea*, Stud.; *H. nitescens*, Andz.

Var. BOREALIS, Clessin. Figs. 29, 30.

Shell depressed, spire but little elevated, suture deep. Diam. 6 mill.

*Northern Sweden.*

Var. PARISIACA, Mabille. Figs. 31, 32.

*France, Norway.*

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*Unfigured Species.*

H. OLTISIANA, Fagot. *Spain, Hungary.*

H. NORVEGICA, Esmark. *Norway.*

H. LOANA, Gredler. *China.*

Section NAUTILINUS, Mousson, 1872.

H. CLYMENE, Shuttlew. Pl. 53, figs. 33, 34.

Minute, widely umbilicated, depressed, discoidal, thin, smooth, diaphanous, brownish corneous, a little shining, spire immersed; whorls 3, rapidly increasing, convoluted, the last large, inflated, very slightly deflected in front. Diam. 2 mill.

*Teneriffe.*

Its habit is different from the Hyalinæ generally, living in wet moss, associated with *Physa*, *Ancylus*, *Hydrocena*, etc.

Section CONULUS, Fitzinger, 1833.

Dr. Kobelt, in considering the *Conulus* section so numerously represented in Japan, has proposed three groups, distinguished as follows :—

I. DISCOCONULUS. Contains depressed forms, with narrow whorls and no carina. *H. sinapidium*, *H. ampla*, of Japan, *H. spiriplana* of China, and *H. Gundlachi* of Cuba.

II. EUCONULUS. The bullet-shaped species, without keel or only a slight one. *H. fulva* of Europe, *H. pupula*, *pustulina*, *phyllophila* and *incerta*. Most of the Asiatic and American species belong here.

III. TROCHOCONULUS. Usually trochiform, plainly keeled. *H. acutangula*, *H. labilis*, *H. tenera* and *H. obtusangula* of Japan are examples (*Sitzb. Berlin*, 82, 1883).

I have not adopted these divisions, mainly because of the variability of *H. fulva*, the best known species, extreme forms of which might enter the third group, whilst the type belongs to the second.

*** *European and North American Species.*

H. FULVA, Drap. Pl. 53, figs. 35–39.

Imperforate, turbinately globose, thin, pellucid, smooth, shining, minutely striated, amber-colored; whorls 5–6, convex, very narrow, with deep suture, aperture transverse, narrow, umbilical region indented. Diam. 4 mill.

*Circumpolar; Europe, Azores, Caucasus, China, Kamtschatka, Sitka, United States to Texas* and *Florida, Atlantic to Pacific regions.*

American specimens were described by Say as *H. chersina.* "It offers but few varieties, and is easily distinguished by its conical form and thin, amber-colored, transparent shell. It is a very beautiful and delicate little species. The spire is elevated, turreted, attaining even seven full volutions, with an obtuse apex; at other times it is much lower, with a somewhat pointed apex, and not exceeding five volutions. In the latter case the base is of course much broader in proportion to the height, and the outer whorl is obtusely carinated. This carinated form is *H. egena*, Say (fig. 39)."—W. G. BINNEY.

Other synonyms are *H. trochiformis*, Montagu; *H. trochulus*, Dillwyn; *H. trochilus*, Fleming; *H. nitidula*, Alten; *H. Mandralisci*, Bivona.

Var. ALDERI, Gray.

Shell smaller, darker.

Var. MORTONI, Jeffreys.

Shell lighter colored, somewhat depressed, spire convex, last whorl obtusely carinated.

If this variety is maintained, it must bear the earlier name of *egena*, Say.

The known variability of this shell favors the supposition that *H. callopisticus* and *H. vesperalis*, Bourg. (unfigured), recently dismembered from it, are at most only varieties.

H. FABRICII, Beck. Pl. 53, fig. 40.

Subimperforate, conical, thin, striulate, pellucid, fulvous; whorls 6, convex, narrow, the last wider, base a little convex, impressed in the middle, suture profound. Diam. 4 mill.

*Greenland, Labrador.*

Scarcely distinguished from *H. fulva* by its wider last whorl,

more convex base and subperforate umbilicus, and probably only a variety of that species. It is *H. nitida*, Fab.

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H. Upsonii, Calkins. = *Vertigo ovata*, Say.

*** *West Indian, Central and South American Species.*

H. Gundlachi, Pfr. Pl. 53, figs. 44, 45, 41–43.

Subperforate, depressed conic, rather solid, pale rusty brown, minutely striated; whorls 5, narrow, with deep suture, periphery rounded, base convex, excavated around the very small perforation. Diam. 2·5 mill.

*Cuba, St. Thomas, Porto Rico, Viéque, Guadeloupe, Florida, Nicaragua.*

It is *H. egena* of Gould (not Say), and *H. pusilla* (Pfr. not Lowe).

H. dioscoricola, C. B. Adams. Pl. 53, figs. 46, 47.

Shell subperforate, turbinately-globose, thin, very minutely striate, corneous; whorls 3–3½, convex, the last subimpressed in the middle, columella subvertically descending, very shortly reflected. Diam. 1·75 mill.

*Jamaica, Viéque.*

H. epistyliulum, C. B. Adams. Pl. 53, fig. 48.

Perforate, somewhat solid, striulate, white; whorls 7, a little convex, narrow, periphery subangulate, base planate. Diam. 4·3 mill.

*Jamaica.*

H. simulans, C. B. Adams. Pl. 53, figs. 49, 50.

Subperforate, thin, shining, lightly decussated, pellucid, fulvous; whorls 4½, a little convex, periphery subangulated, base convex. Diam. 3·25 mill.

*Jamaica.*

H. plagioptycha, Shuttlew. Pl. 53, fig. 51.

Perforate, decussated obliquely by costulate-striæ and thin incremental lamellæ, corneous, waxy, subpellucid; whorls 4, very convex, the last subinflated, suture profound. Diam. 3 mill.

*Porto Rico and Viéque.*

H. Guatemalensis, Crosse and Fischer. Pl. 53, fig. 52.

Subperforate, thin, translucent, with numerous, regular, oblique

impressed striæ, corneous, suture impressed; whorls 4, slowly increasing, base smoother. Diam. 2 mill.

*Guatemala.*

H. CASSIQUIENSIS, Newcomb. Pl. 53, fig. 53.

Subperforate, faintly striated, brownish corneous; whorls $5\frac{1}{2}$, a little convex, slowly increasing, periphery angulated, base a little convex, lightly concentrically striated. Diam. 4 mill.

*Cassiquia, Demerara.*

H. QUITENSIS, Pfr. Pl. 53, fig. 54.

Subperforate, thin, smooth, pellucid, yellowish hyaline, suture deep; whorls 5, convex, slowly increasing, base a little convex. Diam. 7 mill.

*Quito, Equador.*

H. SEMENLINI, Moricand. Pl. 53, figs. 55, 56.

Imperforate, thin, smooth, pellucid, yellowish corneous, suture impressed; whorls scarcely 5, somewhat flattened, the last not descending, periphery obsoletely angulated, base scarcely more convex, very minutely spirally striated, columella subcallous above. Diam. 3·3 mill.

*Brazil.*

H. PARAGUAYANA, Pfr. Pl. 53, fig. 57.

Perforate, orbicular, smooth, thin, diaphanous, amber-colored; whorls 6, aperture rounded, semilunar. Diam. 5 mill.

*Paraguay.*

It is *H. elevata*, d'Orb, non Say.

H. MARTINEZI, Hidalgo. Pl. 53, fig. 58.

Minutely perforate, thin, hyaline, lightly, very minutely decussated, orange corneous, somewhat lighter below, suture thread-margined; whorls 5, a little convex, the last obtusely angulated at the periphery, not descending in front. Diam. 3·25 mill.

*Bahia, Brazil.*

Differs from the preceding species in being decussated and having a margined suture.

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*Unfigured Species.*

H. FULVOIDEA, Morelet. *Ins. Carmen.*
H. WOLFII, Miller. *Guayaquil.*
H. ABSCONDITA, Phil. *Valdivia, Chili.*
H. OMISSA, Pfr. *Ins. Juan Fernandez.*

### *** *African Species.*

H. MICRA, Morelet. Pl. 53, figs. 59, 60.

Narrowly perforate, depressed conoidal, thin, translucent, scarcely lightly striulate, brownish corneous; whorls $4\frac{1}{2}$, convex, regularly increasing, the last compressed and obsoletely angulated, lighter colored and more shining below. Diam. 3 mill.

*Comoro Is. Ins. Nossi-Bé.*

H. MICROSOMA, Morelet. Pl. 53, figs. 61–63.

Covered perforate, depressed turbinate, thin, brownish corneous, a little shining, smooth; whorls 5, convex, with deep suture, regularly increasing, the last obsoletely angulated, columellar margin at its insertion very shortly revolute. Diam. $3\frac{1}{2}$ mill.

*Comoro Is.*

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*Unfigured Species.*

| | |
|---|---|
| H. JANULUS, Pfr. | *Port Natal.* |
| H. SEMINIUM, Morelet. | *Gabon, W. Africa.* |
| H. CAPSULA, Benson. | *Simon's Bay, Cape of Good Hope.* |
| H. PHYTOSTYLUS, Benson. | *Cape of Good Hope.* |
| H. MELLISSII, Wollaston. | *Ins. St. Helena.* |
| H. SALAZIENSIS, Nevill. | *Ins. Bourbon.* |

### *** *Asiatic Species.*

H. MICCYLA, Benson. Pl. 53, fig. 64.

Imperforate, thin, striulate, a little shining, translucent, brownish corneous; spire truncate-conic, suture impressed, apex very obtuse; whorls 4, convex, the last globose, a little descending in front. Diam. 1, alt. 1·5 mill.

*Ceylon.*

H. TURRITELLA, H. Adams. Pl. 53, fig. 65.

Imperforate, trochiform, thin, obliquely striate, with very obsolete spiral liræ above, orange corneous, lighter at the carina and suture, suture distinct; whorls 6, a little convex, the last not descending, periphery carinate, base convex.

Diam. 11, alt. 12 mill.

*Ceylon.*

First described by H. Adams as *H. conulus*, preoccupied by Blanford.

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H. Billeheusti, Crosse and Fischer. Pl. 53, fig. 66.

Imperforate, very thin, smooth, pellucid, light corneous, suture margined; whorls 6, regularly increasing, rather flattened, the last with thread-like carina, not descending, scarcely convex below. Diam. 3·25 mill.

*Cochin China.*

H. Orcula, Benson. Pl. 53, fig. 67.

Scarcely perforate, thin, irregularly costulate-striate, scabrous, translucent, corneous, suture deep; whorls $3\frac{1}{2}$, rounded, the last scarcely descending. Diam. 2 mill.

*Bengal.*

H. Cassidula, Benson. Pl. 53, fig. 68.

Perforate, striulate, decussated by very minute, close spiral striæ, a little shining, whitish yellow with a wide chestnut band above the periphery, suture impressed, slightly margined; whorls 5, convex, slowly increasing, the last with rounded periphery, a little convex below. Diam. 6 mill.

*Moulmein.*

H. acalles, Pfr. Pl. 53, fig 69.

Scarcely perforated, thin, obliquely rugose, diaphanous, light corneous; whorls $5\frac{1}{2}$, regularly increasing, the last with carinated periphery, not descending in front, base convex.

Diam. 13 mill.

*Nilgherri Mts., India.*

H. glomerosa, Austen. Pl. 53, fig. 70.

Subperforate, subglobular, with indistinct very close longitudinal striæ, dull olivaceous, suture shallow; whorls 6, the last very tumid; aperture narrowly lunate, contracted slightly on the outer margin, a well-marked callus on the body-whorl, peristome solid, somewhat thickened below into an indistinct tooth, columellar margin oblique. Diam. 1·3 mill.

*Dikrang Valley, Dafla Hills, India.*

The group-relationship of this minute shell is very uncertain.

H. sinapidium, Reinhardt. Pl. 53, figs. 71–73.

Covered perforate, corneous, shining, lightly striate, suture narrowly margined; whorls 4, narrow, slowly increasing, the last with rounded periphery, base a little convex.

Diam. 1·75 mill.

*Japan.*

H. PUSTULINA, Reinhardt. Pl. 53, figs. 74–76.

Covered perforate, corneous, smooth, slightly shining, the base a little flattened, radiately striulated and shining; whorls 6, narrow, somwhat convex, with deep suture, the last whorl rounded. Diam. 3 mill.

*Japan.*

H. TENERA, A. Adams. Pl. 54, figs. 77–79.

Imperforate, thin, pellucid, yellowish corneous; whorls 6, flattened, obliquely striate, the last acutely carinate, base shining, convex. Diam. 6 mill.

*Japan.*

H. ACUTANGULA, A. Ad. Pl. 54, figs. 80–82.

Imperforate, thin, amber-colored; whorls 5½, flattened, obliquely thinly striate, periphery acutely carinate, base smooth, rather flattened. Diam. 3 mill.

*Japan.*

*Unfigured Species.*

H. SPIRAPLANA, Gredler. *China.*

H. INCERTA, H. PHYLLOPHILA and H. STENOGYRA, A. Ad. *Japan.*

H. PUPULA, Gould (= *H. fulva*? teste Mollendorff). *Japan.*

H. LABILIS, Gould. *Japan.*

H. AMPLA, H. OBTUSANGULA and H. CIRCUMCINCTA, Reinhardt. *Japan.*

*** *Australasian and Polynesian Species.*

H. PARAMATTENSIS, Cox. Pl. 54, fig. 83.

Imperforate, very smooth, thin, somewhat shining, yellowish, suture impressed; whorls 6, the last convex. Diam. 3 mill.

*Australia.*

H. WILCOXI, Cox. Pl. 54, fig. 84.

Minutely perforate, very thin, shining, hyaline, brownish corneous, lightly obsoletely striate; whorls 6, a little convex, the last rounded. Diam. 4·5 mill.

*Clarence River, Australia.*

*H. umbraculorum*, Brazier, is a synonym.

H. KEMPSEYENSIS, Cox. Pl. 54, fig. 85.

Perforate, thin, light corneous yellow, microscopically striated; whorls 5, slightly convex. Diam. 1 mill.

*East Kempsey, MacLeay River, E. Australia.*

H. Russelli, Brazier. Pl. 54, figs. 86, 87.

Minutely perforate, thin, shining, lightly, closely obliquely striate, brownish corneous, suture channeled; whorls 5, the last subangulate, descending in front, base convex, concentrically striated, umbilicus partly covered by a white callus of the columellar margin. Diam. 3·5 mill.

*Fitzroy Island, Australia.*

H. Elleryi, Brazier. Pl. 54, figs. 88, 89.

Minutely perforate, rather thin, light brown, very lightly and regularly spirally striate, suture subchanneled; whorls 5½, flattened, periphery acutely carinated, base a little convex, with a few obsolete spiral lines. Diam. 3 mill.

*Fitzroy Isl., Australia.*

H. microcosmos, Cox. Pl. 54, figs. 90, 91.

Moderately umbilicated, orange corneous, pellucid, shining; whorls 5, regularly increasing, suture impressed, with elevated rib-like striæ, the interstices very minutely punctate-striate. Diam. 1 mill.

*New South Wales.*

*H. microscopica*, Cox, is another name for this species.

H. scandens, Cox. Pl. 54, fig. 92.

Narrowly umbilicated, orange-corneous, thin, translucent, lightly striate above, smoother and shining below; whorls 5½, flattened, the last carinate, more convex below. Diam. 3·3 mill.

*Port Macquarie, E. Australia.*

H. Penolensis, Cox. Pl. 54, figs. 93, 94.

Umbilicated, rather thin, striulate, light corneous, somewhat shining; whorls 4, rather flattened, the last with obtuse carina, more convex below. Diam. 3·75 mill.

*Penola, Australia.*

H. turriculata, Cox. Pl. 54, fig. 95.

Minutely perforate, light corneous, a little shining, very thin, narrowly striulate; whorls 6, slowly increasing, the last obtusely carinate, base striulate and more shining. Diam. 3·75 mill.

*Port Curtis, Queensland, Australia.*

H. Layardi, Thomson. Pl. 54, figs. 96–98.

Scarcely perforated, thin, very lightly striated above, more distinctly so on the base, polished, yellowish corneous, suture

impressed; whorls 5, a little convex, the last rounded, more convex below. Diam. 5 mill.

*Vate Isl., New Hebrides.*

H. Ostiolum, Crosse. Pl. 54, fig. 99.

Narrowly umbilicated, rather thin, scarcely striulate or shining, light brownish, suture impressed; whorls $4\frac{1}{2}$, slightly convex, the last rather large, aperture lunately rounded, brownish, columellar margin slightly dilated, violaceous brown.

Diam. 4·75 mill.

*New Caledonia.*

H. Vimontiana, Crosse. Pl. 54, fig. 100.

Covered subrimate, thin, very lightly, thinly, obliquely striulate, translucent, scarcely shining, corneous, suture impressed; whorls 4, convex, rapidly increasing, the last scarcely equaling the spire, rounded, aperture corneous, the margins converging.

Diam. 1·5 mill.

*Noumea, N. Caledonia.*

H. dendrobia, Crosse. Pl. 54, fig. 1.

Subrimate, very thin, pellucid, subhyaline, light greenish, corneous, suture moderately impressed; whorls $5\frac{1}{2}$, somewhat flattened, the last obsoletely subangulated. Diam. 5 mill.

*N. Caledonia.*

H. Samoensis, Mousson. Pl. 54, figs. 2–4.

Scarcely perforate, rather thin, smooth, scarcely striulate, a little shining, brownish corneous, suture deep; whorls 5, slowly increasing, rounded, the last a little descending, flattened below, lighter in the centre. Diam. 3 mill.

*Marquisas, Samoan, Tonga, Viti* and *Ellice Islands.*

Figured from a specimen. Mr. Garrett (*Jour. A. N. S. Philad.*, viii) considers it probably a *Microcystis* rather than a *Conulus.*

H. Pinnocki, Liardet. Pl. 54, figs. 5, 6.

Perforate, corneous yellow; whorls 6, flattened, spirally striated, periphery carinated, base convex and smooth.

*Taviunni, Fiji Islands.*

H. Barkasi, Liardet. Pl. 54, fig. 7.

Minute, very minutely perforate, golden horny; whorls $5\frac{1}{2}$, roughly and irregularly striated, transversely ribbed, last whorl acutely carinated, beneath slightly convex, with radiating striæ.

*Taviunni, Fiji Islands.*

H. CLAYI, Liardet. Pl. 54, fig. 8.

Minute, minutely perforate, golden corneous; whorls 5, convex, the last slightly carinate, very finely, closely and regularly striated; smooth and shining on the base.

*Taviunni, Fiji Islands.*

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*Unfigured Species.*

H. TUTUILLÆ, Cox. *Tutuila, Navigator's Is.*
H. SABURRA and H. SUBFULVA, Gassies. *N. Caledonia.*
H. FATUA, Pfr. *New Zealand.*
H. ANTELATA, H. ARDUA, H. VANUÆ-LAVÆ, Cox. *New Hebrides.*
H. TROCHISCUS, Pfr. *Ins. Aroo.*
H. LIARDETI, Brazier. *New South Wales.*
H. MAINO, H. STARKEI, Brazier. *New Guinea.*
H. REEDEI, H. DARNLEYENSIS, H. BARNARDENSIS, H. NEPEANENSIS, H. PORTI, H. GREENVILLEI, Brazier. *N. Australia.*
H. PICTILIS, Tate. *So. Australia.*

Section CONULOPOLITA, Böttger, 1879.

H. RADDEI, Böttger. Pl. 54, figs. 9–11.

Imperforate, brownish corneous above, whitish corneous below, thin, pellucid, very shining; whorls 6½–7, narrow, very slowly increasing, suture impressed, lightly margined, lightly striulate, more distinctly so at the suture. Diam. 10 mill.

*Caucasus.*

Section DIERAMA, Pfr., 1877.

H. DIERAMA, Pfr. Pl. 54, figs. 12–14.

Umbilicus wide, shell depressed, thin, pellucid, hyaline, very lightly decussated by arcuate incremental and close spiral lines, suture impressed; whorls 4½, obliquely flattened, rapidly increasing, the last with subangulate periphery, aperture oblique, margins approaching. Diam. 12 mill.

*Hab. unknown.*

Subgenus PHACUSSA, Hutton, 1884.

H. HYPOPOLIA, Pfeiffer. Pl. 54, fig. 15.

Narrowly umbilicated, closely plicately striate, suture impressed, corneous, shining, sometimes obscurely marked with

brown; whorls 5, the last rounded at the base, aperture lunar-circular. Diam. 6·5 mill.

——— *New Zealand.*

H. FULMINATA and H. HELMSI, Hutton (unfigured). *New Zealand.*

Subgenus STENOPUS, Guilding, 1838.

H. LIVIDA, Guilding. Pl. 54, fig. 16.

Perforate, thin, striulate, brownish-corneous, diaphanous; whorls 6, a little convex, base more convex, periphery obtusely carinated. Diam. 4·5 mill.

*Ins. St. Vincent, W. I.; Ins. Trinidad and Grenada, W. I.*

*H. vacans*, Guppy, from the latter locality, is a synonym.

H. ANGASI, Tryon. Pl. 54, fig. 17.

Perforate, thin, shining, very finely obliquely striated, brownish ash-color; whorls $6\frac{1}{2}$, convex, the last with a thread-like peripheral keel, suture margined, base convex. Diam. 4 mill.

*Costa Rica.*

Described by Angas as *S. Guildingi*, a name preoccupied by Bland.

H. MICANS, Angas. Pl. 54, fig. 22.

Narrowly perforate, thin, shining, nearly smooth, light fulvous brown; whorls 5, very slightly convex, suture impressed, periphery bluntly angled, base flatly convex, with just traces of a very faint rudimentary keel between the umbilicus and periphery. Diam. 4 mill.

*Costa Rica.*

H. GUILDINGII, Bland. Pl. 54, figs. 23–25.

Narrowly perforate, depressed, thin, very lightly striulate, polished, diaphanous, corneous amber-colored; whorls 4, rapidly increasing, scarcely convex, lightly impressed and shortly striate at the suture. Diam. 8 mill.

*Pto. Cabello, Venezuela.*

H. CAYENNENSIS, Pfr. Pl. 54, figs. 18–20.

Widely umbilicated, discoidal, striulate, shining, corneous yellow, spire subplanulate; whorls 5, scarcely convex, the last hardly dilated, not descending. Diam. 11 mill.

*Cayenne; Moyobamba, Peru.*

H. CRUENTATA, Guilding. Pl. 54, fig. 26.

Perforate, much depressed, plicatulate, corneous amber-colored, spire somewhat plane, suture margined; whorls 5, scarcely convex, the last much wider, impressed around the perforation. Diam. 8·5 mill.

*Ins. St. Vincent, W. I.*

Differs from the preceding in the more marked striæ and margined suture.

H. SELENKAI, Pfr. Pl. 54, fig. 27.

Imperforate, trochiform, very thin, very lightly striulate, shining, pellucid, corneous hyaline, suture impressed; whorls 6, slightly convex, slowly increasing, the last not descending, periphery angulate, base convex. Diam. 5 mill.

*Mirador, State of Vera Cruz, Mexico.*

H. ELEGANS, Strebel. Pl. 54, figs. 28–30.

Imperforate, higher, with more convex outline and less distinct peripheral angle than *H. Selenkai;* whorls 7, somewhat translucent, light brownish horn color.

*Mirador, Vera Cruz, Mexico.*

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H. TROCHULINA, Morelet (unfigured). *Guatemala.*

Subgenus OMPHALINA, Rafinesque, 1819.

Section OMPHALINA (restricted).

H. CAPNODES, W. G. Binney. Pl. 55, figs. 28, 29.

Olive, brownish or smoky horn-color, wrinkled striate above, smoother below, suture moderate; whorls 5, rapidly increasing, obliquely flattened, last whorl very ventricose and large, sometimes with coarse revolving lines, aperture large, light olivaceous, umbilicus moderate and deep. Diam. 35 mill.

*N. Alabama, E. Tennessee, W. Georgia, N. Carolina, and W. Virginia.*

A mountain species of the Cumberland subregion. Fig. 28 represents a form more globose than the type. First described as *H. Kopnodes*.

H. FRIABILIS, W. G. Binney. Pl. 55, fig. 30.

Very narrowly umbilicated, very globose, transparent, fragile, thin (thicker in Texas specimens), shining, corneous or brown-

ish corneous; whorls 5, convex, lightly wrinkled, rapidly increasing, the last very large and ventricose, aperture subcircular.

Diam. 26 mill.

*Indiana and Illinois, Southwestward to Texas.*

It is *H. lucubrata*, Pfr., not Say.

H. LUCUBRATA, Say. Pl. 55, figs. 31–33.

Narrowly umbilicated, globosely depressed, lightly, somewhat rugosely striate, polished, brownish yellow, lighter on the base, suture moderately impressed; whorls 4, aperture suborbicular.

Diam. 1 inch. *Mexico.*

I figure also a variety from Crosse and Fischer's work (figs. 32, 33).

H. LÆVIGATA, Pfr. Pl. 55, figs. 34, 35.

Narrowly umbilicated, light olivaceous or brownish horn-color, shining, thin, suture moderately impressed; whorls 5, slopingly flattened, with beautiful regular oblique striæ, and microscopic revolving lines, last whorl expanding towards the aperture; aperture transverse, broadly lunar. Diam. 18–22 mill.

*Western Pennsylvania to Illinois and Arkansas; Southwards to Florida and So. Alabama.*

It is *H. lucubrata*, A. Binney, not Say, *H. fuliginosa*, A. Binney in part, *H. inornata*, Reeve, not Say.

H. RUGELI, W. G. Binney. Pl. 55, figs. 36, 37.

Perforate, thin, delicately wrinkled-striate, more conspicuously so at the moderate suture, base smoother, whole surface polished, smoky or greenish horn-colored above, often somewhat lighter below; whorls 6, slightly rounded, regularly increasing, the last a little dilated at the aperture, aperture large, rounded, oblique. Diam. 19 mill.

*Roan Mt., N. Carolina.*

H. INORNATA, Say. Pl. 55, figs. 38–40.

Narrowly perforate, smooth, shining, very minutely striulate, suture not much impressed; whorls 5, aperture transverse, obliquely lunar, with a white testaceous deposit around its whole inner surface, a little distant from the margin, base rather flattened, indented in the centre. Diam. 16 mill.

*W. New England States, W. Penna. to Illinois, southwards to Tennessee and Western North Carolina and Georgia.*

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H. SUBPLANA, Binney. Pl. 55, figs. 41–43.

Narrowly perforate, shell planulate above and below; olivaceous or smoky horn color, shining, lighter color below, with slightly impressed striæ above, smoother on the base, suture distinct; whorls $5\frac{1}{2}$, increasing rather slowly, aperture transverse.

Diam. 20 mill.

*Mountains of W. Penna., W. North Carolina, E. Tenn., Ky.*

H. FULIGINOSA, Griffith. Pl. 55, figs. 44–46.

Moderately umbilicated, whorls a little obliquely flattened above, lightly wrinkled-striate, smooth, shining, olivaceous chestnut-colored; whorls $4\frac{1}{2}$, rapidly increasing, expanding towards the aperture, suture lightly impressed; aperture oblique, ample, with a light testaceous deposit within, not reaching the margin. Diam. 1 inch.

*Canada to Florida, westwards to the Mississippi River and South to Alabama.*

The synonyms are *H. capillacea*, Pfr., not Fér., and *H. cuprea*, Rafinesque. It is quoted from Mexico, but this is doubtful.

H. GRIFFITHI, Pfr. Pl. 60, fig. 64.

Umbilicated, somewhat solid, smooth, lightly striate above, yellowish corneous; whorls 6, somewhat convex, the last with chestnut-margined suture. Diam. 26 mill.

*Hab. unknown.*

Placed by Pfeiffer in Mesomphix, but appears more properly to belong with this group.

Section MORELETIA, Gray, 1855.

H. PARADENSIS, Pfr. Pl. 55, figs. 47, 48.

Narrowly umbilicated, rather solid, arcuately striated and with inconspicuous spiral lines above, yellowish corneous; whorls 5, the last wide, rounded, radiately striated and more polished below. Diam. 20 mill.

*Parada, Mexico.*

The figure is from a minor variety, in which the revolving striæ are obsolete. Strebel has distinguished this as a doubtful new species under the name of *H. Dohrni*. The typical *H. Paradensis* has not been figured.

H. CADUCA, Pfr. Pl. 55, figs. 49–51.

Narrowly umbilicated, rather fragile, lightly wrinkled-striate, yellowish or orange corneous, often narrowly chestnut-lined at the impressed suture; whorls 5½, rapidly increasing, the last much wider and dilated towards the aperture. Diam. 27 mill.

*Mexico, Texas.*

Is somewhat more depressed than *H. lucubrata*, but may be only a variety of that species.

Var. FASCIATA, Crosse and Fischer. Fig. 49.

Shell larger, the suture distinctly banded with chestnut, extending on the body-whorl as a band above the periphery.

Diam. 31·5 mill.

H. ANGIOMPHALA, Strebel. Pl. 55, figs. 52–54.

Moderately umbilicated, thin, shining, yellowish brown or orange-brown, lighter on the base, where it is often somewhat olivaceous, suture narrowly chestnut banded, with another band above the periphery, costulate-striate, more distinct at the suture; whorls 5½, rather rapidly increasing, a little obliquely flattened above, the base more convex. Diam. 26 mill.

*Mexico.*

Is said to be darker colored, more shining, more depressed and with finer sculpture than the banded var. of *H. caduca*, yet I suspect that it will prove to be identical with it.

H. METONOMASTICA, Crosse and Fischer. Pl. 55, figs. 55, 56.

Moderately umbilicated, thin, diaphanous, silky and closely costulate striate above, smoother and polished below, yellowish corneous, with a narrow chestnut superiorly yellow margined band above the periphery. Diam. 25 mill.

*Mexico.*

Described as *Helix Zonites* by Pfeiffer, and the name altered by Crosse and Fischer on account of its being a member of the genus Zonites. The necessity for the change is questionable.

Var. β. Major. Diam. 32 mill.

Var. γ. Dark colored, with the peripheral zone and umbilical area lighter.

H. EURYOMPHALA, Pfr. Pl. 56, figs. 57–59.

Rather widely, perspectively umbilicated, thin, pellucid, yellowish or olivaceous-corneous, closely regularly costulate-striate above, with occasional impressed faint spiral lines, distantly wrinkled-striate and more shining on the base; whorls 6, somewhat convex, moderately increasing, the last dilated anteriorly. Diam. 37 mill.

*Coban* and *Vera Paz*, *Guatemala*.

*H. cymbalum*, Morelet, is a synonym.

Section ZONYALINA, Martens, 1865.

H. VERACRUZENSIS, Pfr. Pl. 56, figs. 60, 61.

Rather widely umbilicated, somewhat thin, striulate, pellucid, very shining, yellowish or orange-corneous, suture subcrenulately margined; whorls 5, scarcely convex, periphery angulated, base more convex. Diam. 12·5 mill.

*Cordova*, *Vera Cruz*, *Mexico*.

H. JALAPENSIS, Strebel. Pl. 56, figs. 62–64.

Moderately umbilicated, rather thick, but translucent, somewhat shining, yellowish horn-color to brownish olive, becoming more greenish towards the mouth and on the base, with darker growth-striæ, costulate striate, with a few fine spiral lines; whorls $4\frac{1}{2}$–5, flatly convex, more convex below. Diam. 11 mill.

*Jalapa*, *Mexico*.

H. SIGMOIDES, Morelet. Pl. 56, figs. 65–67.

Narrowly perforate, plane above, convex below, with rounded periphery, whitish corneous, thin, obsoletely rhomboidally granulate and shortly hirsute, spire involute, with immersed apex and deep suture; whorls $3\frac{1}{2}$–4, rapidly increasing, lip of the aperture very thin. Diam. 19 mill.

*Vera Paz*, *Guatemala*.

*H. vitrinoides*, Tristram, is a synonym.

H. BILINEATA, Pfr. Pl. 56, figs. 68–72.

Narrowly umbilicated, thin, shining, pellucid, smooth, lightly striulate, more distinctly so at the suture, yellowish corneous, with two chestnut lines or bands, one at the suture and a somewhat broader one above the periphery; whorls 5, slightly convex, regularly moderately increasing, base more convex. Diam. 15 mill.

*Jalapa*, *Mexico*.

Var. VENUSTA, Strebel. Pl. 56, figs. 71, 72.

Commonly with a broad sutural band and another on the base, with a narrower band above the periphery; sometimes the two upper bands unite into one, when the color may be stated better as chestnut, with a peripheral light band, and the middle of the base light.

Var. PALLIDA, Tryon. Fig. 72.

Shell uniformly olivaceous-yellow, no banding.

H. TUXTLENSIS, Crosse and Fischer. Pl. 56, figs. 73, 74.

Umbilicated, thin, slightly shining, subpellucid, with very thin, suboblique hair-like striæ, chestnut-color, with light fulvous corneous sutural line, a band of same color above the periphery, and the centre of the base; whorls 5, slightly convex, regularly increasing; aperture livid white, showing the supraperipheral zone. Diam. 22·5 mill.

*Tuxtla, Vera Cruz, Mexico.*

Like var. *venusta* of *H. bilineata*, but larger, more globose, less depressed, scarcely shining, distinctly striate, wider umbilicus, etc.

Section PATULOPSIS, Strebel, 1880.

H. CARINATA, Strebel. Pl. 56, figs. 75–77.

Rather widely umbilicated, thin, translucent, finely costulate-striate above, smoother and shining below, light or dark brownish horn-color; whorls 4½–5, moderately increasing, somewhat slopingly flattened above, periphery angulated, base convex.

Diam. 9 mill.

*Jalapa, Mexico.*

Section ÆGOPINA, Kobelt, 1879.

H. ZONITOMÆA, Letourneux. Pl. 56, figs. 78–80.

Narrowly, profoundly umbilicated, fragile, pellucid, obliquely striulate, corneous white, becoming corneous olivaceous towards the aperture and yellowish towards the apex; whorls 6½, regularly, slowly increasing, a little angulate on the periphery, rounded below, suture impressed. Diam. 22 mill.

*Algiers.*

H. OLIVETORUM, Herm. Pl. 56, figs. 81–85; Pl. 57, 88–94.

Widely, perspectively umbilicated, thinly striulate, shining, suture impressed; whorls 5½, moderately increasing, somewhat

convex, the last large, dilated towards the aperture, scarcely lighter-colored on the base, umbilical region impressed.

Diam. 29 mill.

*Northern Italy.*

*H. olivetorum* of most French authors is *H. incerta*, Drap. *H. Leopoldiana*, Charp., is a synonym.

Var. ICTERICA, Tiberi. Figs. 84, 85.

Smaller, with more elevated spire, and narrower last whorl.

*Naples.*

Westerlund, considering *icterica* a distinct species, has described but not figured a Var. *Parthenopæa.*

Var. MAUROLICI, Benoit. Pl. 57, figs. 88–90.

Last whorl a little more depressed, and wider, with more transverse aperture, and lightly spirally striate. *Sicily.*

*H. fuscosa*, var. *dubia*, Benoit, is a synonym.

H. CAROTII, Paulucci. Pl. 57, figs. 92–94.

Narrowly umbilicated, smooth, pellucid, very shining, orange corneous, lighter or somewhat olivaceous below, striulate near the impressed, margined suture; whorls 6, the last dilated, very lightly striulate, base more convex. Diam. 20–24·5 mill.

*Calabria.*

H. FRAGRANS, Paulucci. Pl. 57, figs. 95–97.

Narrowly umbilicated, depressed, subplane, subpellucid, fragile, smooth, glabrous, striulate near the narrow-margined suture; greenish corneous, becoming whitish and opaque below; whorls 6, at first slowly increasing, the last dilated, a little excavated around the umbilicus. Diam. 20 mill.

*Calabria.*

H. FUSCOSA, Ziegler. Pl. 57, figs. 86, 87.

Rather narrowly umbilicated, very lightly decussated above, smooth below, shining; yellowish corneous, lighter colored on the base; whorls $5\frac{1}{2}$, the last rather large. Diam. 17 mill.

*Sicily.*

H. BENOITI, Villa. Pl. 57, figs. 98, 99.

Moderately umbilicated, somewhat depressed, thin, striulate, with very fine spiral lines, olivaceous corneous, suture impressed; whorls $6\frac{1}{2}$, slowly increasing, the last large, somewhat expanded in front. Diam. 26 mill.

*Sicily.*

H. CALCARÆ, Aradas and Maggiore. Pl. 57, figs. 100, 1.

Somewhat narrowly umbilicated, very thin, elegantly decussated above by growth striæ and fine spiral lines, waxy, scarcely striulate and very glabrous below, yellowish corneous, suture impressed; whorls 6, slowly increasing, the last large, rounded, base subplanate. Diam. 23 5 mill.

*Sicily.*

H. OBSCURATA, Porro. Pl. 57, figs. 2–4.

Rather narrowly umbilicated, depressed, planulate, striulate, shining, brownish corneous; whorls 5½, rapidly increasing, the last wide, periphery more or less compressed. Diam. 13 mill.

*Corsica.*

H. PORROI, Paulucci. Pl. 57, figs. 5–7.

Rather narrowly umbilicated, plain above, translucent, fragile, shining, olivaceous corneous; whorls 5½, slightly convex, the first one slowly, the last and penultimate rapidly increasing, suture deep, periphery rounded. Diam. 16 5 mill.

*Genoa.*

N. Pini believes that this, and not the preceding form, is the true *H. obscurata*, Porro.

H. ANTONIANA, Paulucci. Pl. 57, figs. 8–10.

Rather narrowly umbilicated, convex above, fulvous, corneous, lighter colored below, opaque, shining, inconspicuously distantly cingulate-striate; whorls 6½, flatly declining, the last two rapidly increasing, suture deep, margined. Diam. 19 mill.

*Island of Sardinia.*

H. TROPIDOPHORA, Mabille. Pl. 57, figs. 11, 12.

Moderately umbilicated, depressed, discoidal, striulate, shining, brownish corneous; whorls 5½, somewhat flattened, the last rapidly increasing, wide, periphery subangulated, suture deep. Diam. 20 mill.

*Corsica.*

Figured in Rossmassler as *H. obscurata*, Porro, and confounded with that species by Pfeiffer and others.

H. FULGIDA, Parreyss. Pl. 57, figs 13, 14.

Rather narrowly umbilicated, depressed, striulate, somewhat solid, scarcely diaphanous, shining, fulvous above, corneous-

white below, suture impressed; whorls 6, subplanulate, regularly slowly increasing, the last subdilated, depressed, periphery rounded.

*Sicily.*

*H. obscurata*, Benoit, non Porro.

H. ISSELIANA, Paulucci. Pl. 57, figs. 15–17.

Rather narrowly umbilicated, depressed, planulate above, thin, fragile, rugosely striulate, olivaceous corneous; whorls 5½, at first slowly, afterwards rapidly increasing, suture profound, last whorl planulate above, compressed below. Diam. 15·5 mill.

*Central Italy.*

H. MERIDIONALIS, Paulucci. Pl. 58, figs. 20–22.

Rather widely umbilicated, depressed, planorbiform, planulate above, thin, fragile, pellucid, yellowish olivaceous, lighter colored below; whorls 5½–6, regularly increasing; the last wider, compressed, subdilated towards the aperture, a little descending, suture well-impressed. Diam. 15 mill.

*Central Italy.*

H. INCERTA, Drap. Pl. 57, figs. 18, 19.

Moderately umbilicated, shining, smooth, striulate, brownish corneous above, yellowish white below, suture impressed, minutely wrinkled; whorls 5½, periphery rounded. Diam. 18 mill.

*Southern France.*

Formerly confounded with *H. olivetorum*, Gmel., but is smaller, more globose, with narrower umbilicus, etc.

Var. VAFRA, Westerlund.

Olivaceous corneous above, dark greenish below, last whorl wide, aperture ovately lanate, columellar margin widely expanded above, spire produced conoidal. Diam. 26 mill.

*Bayonne.*

H. SUPERFLUA, Rossmässler. Pl. 58, figs. 23–25.

Umbilicated, depressed, rather solid, with incremental striæ above, decussated by very minute spiral lines, diaphanous, somewhat shining, cinnamon-color, spire rather plane, suture impressed; whorls 5½–6, somewhat convex, the last whorl striate and white on the base. Diam. 18 mill.

*Ins. Crete.*

H. CRETENSIS, Blanc. Pl. 58, figs. 26–28.

Widely, perspectively umbilicated, rather solid, opaque, distinctly granulated above by incremental striæ and spiral lines, more minutely so below; chestnut corneous, base olivaceous corneous; whorls $6\frac{1}{2}$, the last large, periphery rounded, a little flattened below. Diam. 22–23·5 mill. *Ins. Crete.*

H. DUBOISI, Charp. Pl. 58, figs. 29–31.

Rather narrowly umbilicated, depressed, shining, striulate, lightly decussated by minute concentric lines, yellowish corneous, whitish below; whorls $5\frac{1}{2}$, a little convex, the last dilated, base somewhat flattened. Diam. 27 mill.

*Kutais, Transcaucasia.*

H. ELEGANS, Böttger. Pl. 58, figs. 32–34.

A little smaller than the preceding species, more shining, with narrowed umbilicus, spiral lines obsolete. Diam. 22 mill.

*Lenkoran, Caspian Sea.*

H. FILICUM, Krynicki. Pl. 58, figs. 35–38.

Rather narrowly umbilicated, lightly, closely striulate, a little shining, brownish corneous above, yellowish below; whorls 6–7, narrow, a little convex, the last dilated towards the aperture, base somewhat flattened. Diam. 22 mill.

*Crimea, Caucasus, Transcaucasia.*

Like *H. incerta*, but with one more whorl, less polished, more strongly striate.

H. KUTAISIANA, Mousson. Pl. 58, figs. 39–43.

Narrowly umbilicated, striulate, striæ stronger at suture, yellowish corneous, whitish below, suture light lined; whorls $6\frac{1}{2}$–7, scarcely convex, slowly increasing, the last scarcely dilated, flattened below. Diam. 18–20 mill.

*Transcaucasia.*

Var. TRANSITANS, Böttger. Figs. 41–43.

Smaller, brownish, spire more depressed, very obsoletely distantly spirally striate above. Diam. 15 mill.

H. MINGRELICA, Mousson. Pl. 58, figs. 44–47.

Moderately umbilicated, thin, strongly striate, with sparse spiral lines, dark brownish corneous, lighter-colored below, suture moderate, light lined; whorls $6\frac{1}{2}$, somewhat convex, the last subdilated, scarcely plane below. Diam. 23 mill.

*Transcaucasia.*

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Var. INTERMISSA, Mousson. Fig. 47.

Whorls more compressed, flattened below.

H. PONTICA, Böttger. Pl. 58, figs. 48–50.

Narrowly umbilicated, thin shining, dark fulvous corneous, whitish below; whorls $6\frac{1}{2}$, striate above, with a sutural margin, smooth below, narrow, base rounded. Diam. 19 mill.

*Coast between Luchin and Ponti, Black Sea.*

Is perhaps a synonym of the preceding species.

H. RETICULATA, Böttger. Pl. 58, figs. 51–53.

Like *H. Mingrelica*, but strongly spirally sulcate throughout, moderately umbilicated, chestnut corneous above, greenish below; whorls $6\frac{1}{2}$, closely rugulosely striate, suture with a white thread-like margin. Diam. 23 mill.

*Caucasia.*

H. SUANETICA, Böttger. Pl. 58, figs. 54–56.

Narrowly umbilicated, thin, very shining, brownish amber-color, base white; whorls $5\frac{1}{2}$, a little convex, regularly increasing, obsoletely striulate, more distinctly so at the white-margined suture, with close light spiral lines, last whorl subdilated, double the width of the penultimate, and high in proportion to its width. Diam. 19·5 mill.

*Caucasia.*

H. SUCCINACIA, Böttger. Pl. 59, figs. 57–59.

Like the preceding, but larger, more widely umbilicated, more depressed, very thin, yellowish amber-color; whorls 6, more slowly increasing, the suture less impressed, striæ more obsolete, last whorl wider in proportion to its height. Diam. 20·5 mill.

*Caucasia.*

H. SELECTA, Mousson. Pl. 59, figs. 60–62.

Moderately umbilicated, thin, lightly densely striate, shining, whitish corneous; whorls 6, scarcely convex, the last a little dilated at the aperture. Diam. 21 mill.

*Kutais, Transcaucasia.*

H. SIMONI, Böttger. Pl. 59, figs. 63–65.

Rather narrowly umbilicated, thin, shining, corneous-white; whorls 6, scarcely convex, rather rapidly increasing, densely irregularly striulate, last whorl double the width of the penultimate, planate below. Diam. 22 mill. *Syria.*

H. Cypria, Pfr. Pl. 59, figs. 66, 67.

Rather narrowly umbilicated, somewhat solid, costulate-striate and waxy above, fulvous, base lighter, smoother and shining; whorls $6\frac{1}{2}$, scarcely convex, slowly increasing, base subplanulate. Diam. 19 mill.

*Cyprus, Crete, Greece, near Constantinople.*

*H. protensa*, Parr., not Fér., is a synonym.

H. Malinowski, Zelebor. Pl. 59, figs. 68, 69.

Narrowly umbilicated, rather thin, lightly subundulately striulate, shining, fulvous; whorls 6, a little convex, and rather slowly increasing, the last subdepressed, base lighter colored. Diam. 20 mill.

*Dobrudscha.*

H. semisculpta, Mousson. Pl. 59, figs. 70–72.

Narrowly umbilicated, thin, strongly striated and decussated by decurrent lines above, chestnut-brown, smoother and lighter colored below; whorls $5\frac{1}{2}$, moderately increasing, strongly striate at the impressed suture, periphery scarcely angulated. Diam. 12 mill.

*Persian shores of the Caspian Sea.*

H. protensa, Fér. Pl. 59, figs. 91–93.

Moderately umbilicated, striate, diaphanous, yellowish; whorls $4\frac{1}{2}$, flattened, rapidly increasing. Diam. 20 mill.

*Syria.*

H. Jebusitica, Roth. Pl. 59, figs. 75–77.

Widely umbilicated, thin, irregularly striulate, and lightly spirally sculptured above, a little shining, olivaceous corneous, suture submargined; whorls 5, scarcely convex, rapidly increasing, the last depressed, periphery subangulate, base scarcely more convex, lighter colored. Diam. 16 mill.

*Jerusalem.*

H. natolica, Albers. Pl. 59, figs. 88–90.

Umbilicated, rather thin, smoothly striulate, with very slight spiral lines, crispate at the suture; corneous white, shining; whorls 7, slowly increasing, aperture oblique, wide. Diam. 20 mill.

*Natolia* and *Scutari.*

H. æquata, Mousson. Pl. 59, figs, 94–96.

Umbilicated, thin, lightly striulate, and very obsoletely spirally

striate, a little shining, yellowish corneous; whorls 4½, subplanulate, increasing rapidly, base more convex. Diam. 15 mill.

*Athens*, and *Islands of Rhodes and Syra.*

H. NITELLINA, Bourg. Pl. 59, figs. 99–1.

Narrowly umbilicated, flattened above, more convex below, diaphanous, shining, thin, decussated above by fine incremental and spiral striæ, greenish vitreous, below smooth, whitish; whorls 4½, somewhat rapidly enlarging, periphery obtusely angulated. Diam. 13–15 mill.

*Rhodes*, *Syria*, *Palestine.*

Is possibly a variety only of the preceding species—if so, Bourguignat's name has priority.

H. SUTURALIS, Böttger. Pl. 59, figs. 87, 97, 98.

Very narrowly perforate, thin, pellucid, very shining, orange corneous, lighter on the base, becoming whitish; whorls 4½, slightly striulate at the suture, somewhat rapidly enlarging, suture smooth, superficial, narrowly white-margined.

Diam. 7·25–7·5 mill.

*Suram Mts.*, *Transcaucasia.*

Is perhaps not adult, as suspected by Böttger; when fully grown would probably approach closely to *H. Moussoni*, Kobelt.

H. MOUSSONI, Kobelt. Pl. 59, figs. 2, 3.

Narrowly perforate, very lightly striulate, shining, thin, fragile, diaphanous, yellowish corneous above, whitish below; whorls 5, suture profound, last whorl dilated, subplanate above, more convex below, aperture widely lunate, lip diffusely whitish.

Diam. 19 mill.

*Near Constantinople.*

See remarks upon the preceding species.

H. COMPLANATA, Desh. Pl. 59. figs. 78–80.

Discoidal, thin, diaphanous, brownish, plane above, umbilicus wide; whorls a little convex, striate, the striæ fading out at the periphery. Diam. 13 mill.

*Hab. unknown.*

H. DJURJURENSIS, Debeaux. Pl. 59, figs. 81–83.

Moderately umbilicated, planorbiform, fragile, depressed above and below, shining, very thinly striate, corneous yellow, whitish

on base, subpellucid; whorls 5–6, slowly increasing, the last not expanding. Diam. 16 mill.

*Near Fort Napoleon, Kabylia.*

It is *H. planorboidea*, Deb. in litt.

H. Tetuanensis, Kobelt. Pl. 59, figs. 84–86.

Moderately umbilicated, depressed, trochiform, somewhat solid, corneous, scarcely shining, irregularly costate-striate above, smoother and shining below; whorls 5½, regularly increasing, the last dilated, more convex on base. Diam. 17 mill.

*Mts. Tetuan, Morocco.*

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*Unfigured Species.*

| | |
|---|---|
| H. Vasconica, Bourg. | *Southern France, Spain.* |
| H. Alleryi, Paulucci. | *Sicily.* |
| H. Alleryi, var. *hemispherica*, Westerlund. | *Sicily.* |
| H. Westerlundi, Cafici. | *Sicily.* |
| H. ægopinoides, Maltzan. | *Ins. Crete.* |

Section Mesomphix, Rafinesque, 1819.

H. intertexta, Binney. Pl. 60, figs. 5, 6.

Perforated, epidermis yellowish corneous; whorls 6–7, with numerous fine oblique, and microscopic spiral striæ, intersecting, outer whorl often with a faintly defined narrow, light colored band and sometimes an obscure brownish band below it, both sometimes wanting, peristome somewhat thickened within. Diam. 15 mill.

*New York to Indiana, Tennessee to Georgia and Texas.*

Somewhat larger, more depressed, with fewer whorls and flatter base than the next species; it also differs in having fine revolving striæ, and in the band, when present.

H. ligera, Say. Pl. 60, figs. 7–9.

Perforated, yellowish horn-color, shining, without band; whorls 7, finely and thickly striated transversely, smooth below, suture not much impressed; aperture thickened within; umbilical region impressed. Diam. 15 mill.

*Great Lakes to Georgia and Arkansas.*

*H. Rafinesquea*, Fér., and *H. Wardiana*, Lea, are synonyms.

H. DEMISSA, Binney. Pl. 60, figs. 10–12.

Perforated, yellowish horn-color, shining; whorls 6, with minute growth-lines, suture impressed, body-whorl expanding slightly towards the aperture, aperture thickened within.

Diam. 11·5 mill.

*Western Pennsylvania to Arkansas, So. to Ala. and Texas.*

Var. ACERRA, Lewis. Pl. 60, fig. 13.

Shell large, robust, with strong striæ. Diam. 20 mill.

*Mts. of E. Tennessee and W. No. Carolina.*

H. CERINOIDEA, Anthony. Pl. 60, fig. 14.

Narrowly perforated, shining, light horn-color, scarcely wrinkled by growth-lines; whorls 7, flattened, narrow, the last slightly inflated below. Diam. 7 mill.

*Jacksonville, Fla.; Charleston, S. C.; Newberne, N. C.; Norfolk, Va.*

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H. PTYCHORAPHE, Weinland and Martens. (Unfigured). *Haiti.*

Subgenus GASTRODONTA, Albers, 1850.

Section GASTRODONTA (typical).

G. LASMODON, Phillips. Pl. 60, figs. 15, 16.

Rather widely umbilicated, flattened above, more convex on the base, thin, corneous, shining; whorls 7, narrow, very slowly increasing, minutely striate above, smoother below, suture moderate; upon the basal part of the aperture are two prominent white, nearly parallel laminæ, extending far into the cavity.

Diam. 6 mill.

*Mts. of E. Tennessee and N. Alabama.*

H. MACILENTA, Shuttlew. Pl. 60, figs. 18, 19.

Widely, perspectively umbilicated, depressed above, reddish horn-colored, diaphanous, striated and scarcely shining above, smoother and shining below; whorls 8, narrow, very slowly increasing; aperture with one or two parallel basal laminæ.

Diam. 8 mill.

*Mts. of E. Tennessee and Western N. Carolina.*

Formerly confounded with *H. lasmodon*, and I still doubt the propriety of separating it.

H. INTERNA, Say. Pl. 60, figs. 20–22.

Very narrowly perforated, brownish corneous, lighter on the base; whorls 8, with regular small, close oblique ribs and intermediate grooves, and deeply impressed suture, base smooth, polished, umbilical region indented; within the aperture, upon the exterior portion of the base are two prominent, white lamelliform teeth, of which the upper one is strongest. Diam. 6 mill.

*Western Pennsylvania to Missouri, South to Georgia.*

*H. pomum-adami*, Green, is a synonym.

H. SIGNIFICANS, Bland. Pl. 60, figs. 23, 24.

Narrowly umbilicated, thin, finely irregularly striate above, almost smooth below; whorls 6, narrow, subplanulate, the last roundly inflated, rather flat on the base, and excavated around the umbilicus. Diam. 4·5 mill.

*Union Co., Tennessee; Fort Gibson, Indian Territory.*

Viewed through the base there are three pairs of white teeth visible, which gradually disappear as the shell grows old; whilst in the nearly allied but smaller *H. multidentata* the teeth are five or six in each radiating row.

H. MULTIDENTATA, Binney. Pl. 60, figs. 25, 26.

Narrowly umbilicated, subplanulate above, very thin, pellucid, smooth, shining; whorls 6, narrow, slowly increasing, delicately striated above, suture impressed, base convex, indented around the umbilicus; through the base may be seen three or four radiating rows of small white teeth, about five or six in each row. Diam. 3·25 mill.

*Canada, Northern portions of the United States, Maine to Ohio.*

H. ANDREWSI, W. G. Binney. Pl. 60, figs. 27, 28.

Narrowly umbilicated, depressed; whorls 8½, narrow, the last well rounded below; viewed through the base it has five parallel lamellæ. Diam. 6·5 mill.

*Roan Mt., N. Carolina.*

"From *L. significans* it differs in its larger size, greater number of whorls, much wider umbilicus, and in the character of its internal denticles, which are long and winding on the wall of the whorl; while in *significans* the denticles are simply erect and conical, with broad base. The same differences distinguish

it from *multidentatus*, which is still smaller than *significans* and has a narrower umbilicus."—BINNEY.

H. HILLEI, Gundlach. Pl. 60, figs. 29–31.

Moderately umbilicated, depressed, thin, somewhat smooth, whitish hyaline; whorls 6, very narrow, suture deep, last whorl obsoletely subangulated; aperture with a more or less interrupted spiral lamina on the base, and series of transverse irregular teeth. Diam. 4·5, alt. 2·5 mill.

*Cuba.*

H. BLANDII, Weinland. Pl. 60, figs. 32, 33.

Narrowly perforate, with narrower whorls, and more elevated than the last species. Diam. 4, alt. 3 mill.

*Haiti.*

H. ENSIFERA, Mousson. Pl. 60, fig. 34.

Narrowly perforate, pellucid, horn-color, very shining; whorls $4\frac{1}{2}$ (?), somewhat flattened above, the last subangulate, more convex below, narrowly impressed in the middle, suture scarcely impressed, very narrowly margined; aperture with two lamellæ within the outer wall, one submedian, the other smaller, basal, or evanescent, columella plicately produced. Diam. 2 mill.

*Ins. Samoa.*

Section VENTRIDENS, Binney and Bland, 1869.

H. GULARIS, Say. Pl. 60, figs. 35–38.

Subperforate, pale yellowish horn-color; whorls 7–8, narrow, with curved close transverse wrinkles, suture impressed; peristome thin at the edge, thickened within with a white testaceous deposit; base flattened, indented in the centre; yellowish white and opaque near the aperture; umbilicus small and rounded in young shells, obsolete or diminished to a mere point in older ones; within the base of the aperture are one or two lamelliform, elongated, nearly parallel teeth, one near the base, the other and larger one exterior. Diam. 8 mill.

*Mts. of E. Tennessee, W. Virginia and Western Penna., Southwards to N. Georgia and Alabama.*

Is a larger species, with one more whorl, higher spire and less convex base, than the next; the nucleus also is smaller, so that the first two whorls are finer and more delicate. It is *H. bicostata*, Pfr.

Var. CUSPIDATA, Lewis. Pl. 60, fig. 39.

Internal teeth strongly curved one towards the other, forming almost an arched space; umbilicus entirely closed.

*Monroe Co., Tenn.; Roan Mt., N. Carolina.*

H. SUPPRESSA, Say. Pl. 60, figs. 40–42.

Thin, pellucid, polished, yellowish horn-color; whorls 6, with crowded, minute, oblique striæ above, and impressed suture; peristome thin at the edge, thickened within; base rather convex, opaque and yellowish white near the aperture; umbilicus small, but rounded and distinct in young shells, obsolete or hardly apparent in older ones; within the peristome are one or two lamelliform oblique teeth. Diam. 5 mill.

*New England to Florida, Westward to Colorado.*

See last species for distinctive characters. It is *H. gularis* β, of Pfeiffer.

Section HELICODISCUS, Morse, 1864.

H. LINEATA, Say. Pl. 60, figs. 43–47.

Widely umbilicated, umbilicus shallow, discoidal or spire slightly convex; yellowish or greenish yellow; whorls 4, visible below as well as above, with numerous parallel revolving lines and deep suture; within the aperture, on the external circumference, are placed from one to three pairs of minute, conical white teeth, the first pair in sight when looking into the aperture, the others more remote. Diam. 3·5 mill.

*Throughout the United States, including California.*

H. FIMBRIATA, Wetherby. Pl. 60, figs. 48, 49.

Widely umbilicated, discoidal or planorbiform; light greenish yellow; whorls 5, very slowly increasing, with deep suture, last whorl deflected at the aperture; aperture armed with teeth, sometimes as many as six, none of which can be seen from the mouth; umbilicus shallow, showing all the whorls; whorls with six to eight revolving ridges, ornamented with an epidermal fringe, two or three of these ridges on the upper side of the body-whorl are often of such prominence as to give that portion of the shell a fluted appearance. Diam. 5 mill.

*E. Tennessee, N. Georgia.*

Section ODONTOSAGDA, Martens, 1860.

H. POLYODON, Weinland and Martens.

Umbilicated, depressed, thin, striulate, whitish, subcarinated; spire convex; whorls 6, a little convex, with distinct suture, last whorl not descending; interior of aperture with three doubly interrupted basal lamellæ. Diam. 6, alt. 3 mill.

Unfigured. *Haiti.*

Section PROSERPINULA, Albers, 1860.

H. OPALINA, Adams. Pl. 60, figs. 50, 52.

Imperforate, depressed, smooth, very shining, greenish white; whorls $4\frac{1}{2}$, planulate, the last depressed, base excavated; aperture with a spiral basal lamina. Diam. 6 mill.

*Jamaica.*

It is *H. hyalina*, Ads., and *H. margarita*, Pfr. Bland renamed it *H. infortunata*, because all three previous names are preoccupied in Helix; but in Zonites the name above selected may stand.

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H. DISCOIDEA, Adams. Unfigured. *Jamaica.*

First described by Pfeiffer as *H. Proserpinula*. Does it really differ from the above?

Subgenus STRIATURA, Morse, 1864.

H. FERREA, Morse. Pl. 60, figs. 53, 54.

Umbilicated, transparent, pale steel-gray, not shining, with delicate growth striæ and microscopic revolving lines; whorls 3, rounded, the last rapidly enlarging; aperture large, transversely subcircular. Diam. 2·5 mill.

*Maine.*

H. BINNEYANA, Morse.

This species, which I have described on p. 162, may also be considered a *Striatura*.

Section PSEUDOHYALINA, Morse, 1864.

H. LIMATULA, Ward. Pl. 60, figs. 55–57.

Widely umbilicated, depressed, thin, yellowish white or greenish white; whorls more than 4, convex, with very fine oblique parallel striæ, becoming obsolete on the base. Diam. 5·5 mill.

*New York, Ohio, Michigan, San Mateo, Cal.*

H. MINUSCULA, Binney. Pl. 50, figs. 58–63.

Widely umbilicated, minute, whitish; whorls 4, moderately enlarging, microscopically striate, suture rather deeply impressed; aperture nearly circular. Diam. 2·5 mill.

*All the United States south to Florida, Texas, California, British America, Japan, Mexico, Bermuda, Jamaica, Porto Rico, Venezuela.*

A species of very wide distribution, including the following synonyms: *H. apex*, C. B. Adams; *H. Lavalleana*, d'Orb (figs. 61–63); *H. minutalis*, Morelet; *H. Mauriniana*, Binney and Pfeiffer, not d'Orb.; *H. saxicola*, Pfr.

Dr. Dall (*Proc. Nat. Mus., viii, No. 17*) writes:

"There is a curious tangle in regard to the name of this species. In the second number (May) of the descriptive, or first volume, of the Archiv für Naturgeschichte, Dr. Pfeiffer described, in 1840, a small Helix from Cuba, under the name of *saxicola*. The year before he had described another under the name of *Helix Boothiana*, which afterwards became the type of the subgenus Microphysa. Dr. Amos Binney read his description of *Helix minuscula*, in November, 1840, but the part of the Journal in which it was printed contains papers which were not read until February, 1841, and was probably published in that year. In 1841 the earlier signatures and plates of d'Orbigny's Mollusques de Cuba appeared, forming part of Ramon de la Sagra's Historia de Cuba. The whole work was not finished until 1853, but the earlier parts appeared at intervals. In this d'Orbigny described *Helix Lavalleana* and *H. Mauriniana*, but by an accident the numbers of the figures were transposed on the plate. Later Pfeiffer identified his *Helix saxicola* with *H. Lavalleana*, d'Orbigny, and his *H. Boothiana* with *H. Mauriniana*, though the confusion of the numbers of the figures renders a little study necessary to make this clear. Still later W. G. Binney identified his father's *H. minuscula* with *H. Lavalleana* as correctly understood. Now, two things which are equal to the same thing being equal to each other, it follows that *H. minuscula*, if the above identifications be correct, is the same as *H. saxicola*, and synonymous with it, as *saxicola* appears to be the older name. Until the identifications are a little more clearly understood, it will

probably be better to retain Dr. Binney's widely known and accepted name.

"Albers states that *H. apex*, Adams, cannot be united with *minuscula*, being distinguished by its size and by fine spiral sculpture. A nearer relative of *H. apex* is *H. hypolepta*, Shuttleworth, 1854. The diagnosis of Microphysa, which, on the whole seems poorly, if at all, distinguished from Hyalina, precludes the inclusion with it of such shells as *Conulus Stearnsi*, Bland, and *Gastrodonta* (?) *Lansingi*, Bland, as Mr. W. G. Binney has recently suggested. The more we learn about the characters of the soft parts, shells, and dentition of these land shells, the more evident it becomes that many of these groups are unnecessary, and might better be dispensed with. The series inosculate on every side."

H. MILIUM, Morse. Pl. 60, figs. 64, 65.

Widely umbilicated, depressed, transparent, shining, greenish white, distinctly striate, and with microscopic revolving lines more conspicuous below; whorls 3, rounded, rapidly increasing, the last planulate above. Diam. 1·5 mill.

*Maine*, *Massachusetts*, *Kentucky*, *California*.

"The surface is raised in numerous rib-like folds, frequently anastomosing; longitudinal ribs reticulate the surface and render the folds so crenulated, that in certain lights the shell appears as if ornamented with strings of beads. This peculiar character disappears at the base of the shell, and is replaced by revolving lines and regular lines of accretion."—BINNEY.

H. EXIGUA, Stimpson. Pl. 60, figs. 66, 67.

Widely umbilicated, depressed, pellucid, greenish yellow, with delicate revolving lines, and distant oblique longitudinal ribs; whorls $3\frac{1}{2}$, convex. Diam. 2·5 mill.

*Canada*, *New England to Minnesota*.

It is *H. annulata*, Case.

H. CONSPECTA, Bland. Pl. 60, fig. 68.

Moderately umbilicated, subdepressed, thin, with oblique, rather distant, rib-like striæ, the interspaces microscopically striate, dark horn-color; whorls 4, convex, gradually increasing, with deep suture. Diam. 2 mill.

*Alaska to California*, *Cunningham Gulch*, *Colorado*.

H. MAZATLANICA, Pfr. Pl. 61, fig. 69.

Widely umbilicated, depressed, closely costulate-striate, corneous; whorls 4, somewhat convex, moderately incurving, the last narrow. Diam. 2·3 mill.

*Mazatlan, W. Coast of Mexico.*

H. ELEGANTULA, Pfr. Pl. 61, figs. 70–72.

Widely umbilicated, depressed, almost discoidal, thin, closely elegantly costulate, hyaline white; whorls 4, somewhat convex, the last scarcely wider than the penultimate, periphery rounded, suture deep. Diam. 1·5 mill.

*Near Vera Cruz, Mexico.*

H. EXULATA, Smith. Pl. 61, figs. 73–75.

Widely deeply umbilicated, thin, semitransparent, pale yellowish horn-color, glossy, with oblique growth-lines; whorls 5, rapidly enlarging, suture margined. Diam. 7·5 mill.

*Tristan d'Acunha.*

A doubtful member of the group, its geographical position and size being objections; on the other hand, the rugose, almost rib-like striæ and large umbilicus are points of agreement.

H. INCRUSTATA, Poey. Pl. 61, figs. 76–78.

Rather largely umbilicated, somewhat thin, closely striate, horn-colored, usually incrusted with particles of earth; whorls 4, convex, the last obsoletely angulated above the middle, suture deep. Diam. 4·66 mill.

*Florida, Texas, Cuba.*

*H. saxicola*, Gould, is a synonym.

Section PYCNOGYRA, Strebel, 1880.

H. BERENDTI, Pfr. Pl. 61, figs. 79–81.

Umbilicus rather large, shell somewhat solid, hyaline white, closely costulate above; whorls 6, a little convex, very slowly increasing, the periphery subangulate, base more convex, smoothish. Diam. 4 mill.

*Vera Cruz, Mexico.*

Subgenus JANULUS, Lowe, 1852.

H. POMPYLIA, Shuttleworth. Pl. 61, figs. 82–84.

Perforate, flattened and costulate above, convex below and smoothish; reddish corneous, streaked radiately with white on

the base; whorls 8, obtusely angulated on the periphery, slowly increasing, narrow, subexcavated around the perforation; aperture narrowly lunate. Diam. 5 mill.

*Ins. Palma, Canaries.*

H. BIFRONS, Lowe. Pl. 61, figs, 85–87.

Perforate, thin, costulate-striate above, periphery subangulated, smoother below, greenish corneous; whorls 7–8, slowly increasing, narrow, with distinct suture; peristome widely white-lipped within. Diam. 12 mill.

*Madeira.*

H. STEPHANOPHORA, Deshayes. Pl. 61, figs. 88–90.

Narrowly umbilicated, somewhat solid, closely costulate above, the periphery crenately subcarinate, base more convex, smoother, yellowish cinnamon-color, suture deep; whorls 9, narrow; interior with two or three basal radiating rows of short lamellæ, three or four in a row. Diam. 10 mill.

*Madeira.*

*H. calathus*, Lowe, is a synonym. The internal lamellæ are like those of Gastrodonta, but the shell in other respects agrees with the foregoing species of Janulus.

## Genus SELENITES, Fischer, 1879.

S. VANCOUVERENSIS, Lea. Pl. 61, figs. 91–93.

Widely umbilicated, depressed above, more convex below, epidermis rather thick, polished, light greenish yellow, very closely striate by arcuate growth-lines, crossed by microscopic revolving lines; whorls 5, rather rapidly increasing, the last flattened above at the aperture; peristome often brown-tinged, its extremities connected by a parietal callus. Diam. 31 mill.

*Alaska to California, Idaho and Montana.*

Much larger than *H. concava*, although having the same number of whorls, with narrower umbilicus, darker color and coarser sculpture. A dark reddish brown variety is found in Alaska. *H. vellicata*, Forbes, is a synonym.

S. SPORTELLA, Gould. Pl. 61, figs. 94, 95.

Widely umbilicated, pale yellowish green, shining, regularly sculptured by sharp, close growth-striæ, crossed by fine, close revolving lines, causing a granulated appearance when closely

examined; whorls 5, rather rapidly enlarging, the last depressed above at the aperture. Diam. 12 mill.

*Puget Sound to San Diego, Cal.*

The striæ are sharper than in the larger *H. Vancouverensis*, so that the revolving lines only show upon the ridges which they cross, and the color is usually somewhat paler. The difference in sculpture between the two species is generally better marked on the base of the shell, which in *H. Vancouverensis* is much smoother.

S. CONCAVA, Say. Pl. 61, figs 96–98.

Very widely umbilicated, very pale yellowish or greenish yellow, finely lightly striate, sometimes with microscopic revolving lines; whorls 5, a little flattened above, well-rounded below, with well-impressed suture, last whorl flattened above at the aperture; peristome often tinged with chestnut-color.

Diam. 21 mill.

*Canada, Maine to Michigan,*
*south to Georgia and Missouri.*

*H. planorboides*, Fer., and *H. dissidens*, Desh., are synonyms.

The animal is grayish above, with bluish tentacles and eye-peduncles, the pedal disk dirty white, collar and tail tinged with reddish orange; foot narrow, twice as long as the diameter of the shell.

As shown by its dentition, this animal is voracious and carnivorous in its appetite, "almost always," writes W. G. Binney, "preying upon other species with which it may be kept, and so certainly destroying them, that I have been obliged to keep them by themselves. This it effects by inserting its narrow body, which it has the power of elongating and protruding very far from its own shell, into the shells of its victims, and then feeding upon them at its leisure."

S. VOYANA, Newcomb. Pl. 61, figs. 99, 100.

Widely umbilicated, thin, translucent, with delicate oblique striæ, and fine revolving lines, more developed below, very light olivaceous horn-color; whorls 5, rapidly increasing, the last strongly depressed above at the aperture; aperture obtusely

subtriangular, often thickened, as well as the parietal callus in the adult and chestnut-tinged. Diam. 12–15 mill.

*Canyon Creek, Trinity Co., and San Diego, Cal.*

Smaller, flatter, smoother than *H. sportella*, with more triangular aperture. Ancey has named a variety SIMPLICILABRIS.

S. HEMPHILLI, W. G. Binney. Pl. 61, figs. 1, 2.

Umbilicus moderate, light greenish yellow, glossy, thin, like Hyalinia, irregularly impressed-striate, but without any trace of revolving lines; whorls five, moderately increasing, the last a little flattened above at the aperture. Diam. 12–14 mill.

*Washington Territory.*

S. BELCHERI, Pfr. Pl. 61, fig. 2 *a*.

Moderately umbilicated, yellowish, glossy, thin, closely striate above, smooth below, without revolving striæ; whorls 5, moderately increasing, the last a little flattened above at the aperture, base subplanulate. Diam. 8·3 mill.

*Hab. unknown.*

Dr. J. G. Cooper (Calif. Proc., 254, 1885) thinks this may = *S. Hemphilli*. The figure in Reeve, which I copy, is not stated to be enlarged, yet it represents a shell much larger than the above species; perhaps it has not been correctly identified.

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S. ANDIUM, Phil. Pl. 61, figs. 3–5.

Widely umbilicated, depressed, rather solid, smooth, shining, with close impressed fine growth-striæ and minute revolving lines, greenish yellow, occasionally strigate with chestnut-yellow; whorls 5, suture deep, last whorl scarcely flattened above at the aperture. Diam. 31 mill.

*Andes of Chili.*

S. EUSPIRA, Pfr. Pl. 61, fig. 6.

Widely umbilicated, discoidal, rather solid, arcuately striate with slight irregular revolving lines, shining, olivaceous orange color; whorls $4\frac{1}{2}$, moderately increasing, suture well impressed. Diam. 26 mill.

*Venezuela.*

S. PAUCISPIRA, Poey. Pl. 61, figs. 7–9.

Widely umbilicated, subdiscoidal, thin, pellucid, polished, striulate, yellowish white; whorls 4, rapidly increasing, the last

a little obliquely flattened above, periphery very obsoletely angulated. Diam. 7–9 mill.

*Cuba.*

Section HAPLOTREMA, Ancey, 1881.

S. DURANTI, Newcomb. Pl. 61, figs. 10, 11.

Widely umbilicated, discoidal, thin, coarsely, roughly striate, yellowish white, or light yellowish brown; whorls 4, flattened, the last not descending at the aperture, broadly excavated and channeled below. Diam. 4 mill.

*San Francisco to Lower California.*

Section MÖRCHIA, Albers, 1860.

S. CONCOLOR, Fér. Pl. 61, figs. 12–14.

Widely umbilicated, subdiscoidal, smooth, lightly striate, dark chocolate-brown, strigate with lighter brown, suture linear; whorls 4, rapidly increasing, the last is obliquely depressed above, base more convex. Diam. 15–25 mill.

*Porto Rico, W. Indies.*

It is viviparous.

S. BAUDONI, Petit. Pl. 62, figs. 15, 16.

Widely umbilicated, rather smooth, depressed, somewhat shining, blackish olivaceous; whorls $3\frac{1}{2}$, nearly plane above, the last a little obliquely flattened. Diam. 15 mill.

*Guadeloupe and Dominica, W. I.*

Genus CHAROPA, Albers, 1860.

C. SERICATULA, Pfr. Pl. 62, figs. 17, 18.

Perforate, slightly closely ribbed-striate, grayish corneous, with irregular radiating brownish markings; whorls $4\frac{1}{2}$, scarcely convex, subimpressed around the perforation. Diam. 4·5 mill.

*Port Jackson, Australia.*

C. BIRETRACTA, Mousson. Pl. 62, figs. 19, 20

Scarcely perforate, acutely closely ribbed-striate, light fulvous, with a few darker lines; whorls 5, moderately increasing, rounded, with well-impressed suture, above a little impressed in the middle, biarcuately striated. Diam. 5 mill.

*Wollongong, Sydney, Australia.*

C. INUSTA, Cox. Pl. 62, fig. 21, 22.

Covered perforate, regularly costulate, brownish corneous, suture impressed; whorls $4\frac{1}{2}$, the last flattened above in the middle. Diam. $5\frac{1}{2}$ mill.

*Clarence River, N. S. Wales.*

Described by Dr. Cox as *H. Nautiloidea*, a preoccupied name in Helix.

H. FUNEREA, Cox. Pl. 62, figs. 23, 24.

Umbilicated, almost discoidal, rather thin, strongly, regularly very densely arcuately costulate, blackish ash-color; whorls 4, convex, the last round. Diam. 6 mill.

*New South Wales.*

The rather wide umbilicus separates this and the succeeding from the foregoing species, and indicates Patula rather than Charopa.

C. ALBANENSIS, Cox. Pl. 62, figs. 25, 26.

Widely umbilicated, acutely flexuosely costulate, rather solid, yellowish brown, with radiating brownish lines above, suture impressed; whorls 5, slowly increasing, rounded. Diam. 5 mill.

*Port Albany, W. Australia.*

C. MACQUARIENSIS, Cox. Pl. 62, fig. 27.

Widely and deeply umbilicated, thin, translucent, shining, rudely irregularly striated above, smoother below, lightly spirally striulate; yellowish, broadly subradiately strigate with chestnut; whorls $4\frac{1}{2}$, rapidly increasing, periphery subangulated. Diam. 3·5 mill.

*Port Macquarie, E. Australia.*

C. JULOIDEA, Forbes. Pl. 62, figs. 28, 29.

Widely umbilicated, closely elegantly costulate, corneous; whorls 4, spire plane, apex immersed, suture deep. Diam. 5 mill.

*N. Australia.*

C. LE GRANDI, Cox. Pl. 62, figs. 30, 31.

Widely umbilicated, closely acutely irregularly costulate, chestnut-brown; spire plane, the apex not depressed, suture impressed; whorls $4\frac{1}{2}$, flattened towards the suture, the last tumid. Diam. 3·5 mill.

*Mt. Wellington, Tasmania.*

*C. Ricei* and *C. Onslowi*, both of Brazier and unfigured, are considered synonyms by Mr. Petterd.

C. IDA, Gray. Pl. 62, figs. 32–34.

Umbilicated, thin, arcuately costulate, pilose; light corneous, rayed with chestnut-brown, suture impressed; whorls $5\frac{1}{2}$, a little convex, slowly increasing, the last subrotund. Diam. 8 mill.

*Auckland, New Zealand.*

C. ZICZAC, Gould. Pl. 62, figs. 35–37.

Umbilicate, thin, costulate and pilose, yellowish white, with angular zigzag chestnut rays; whorls 6, convex, narrow.

Length, 7·5 mill.

*? New Zealand.*

Gould and Hutton both surmise the identity of this with the last species; if so, it has priority of publication. *C. Ida*, however, does not appear to have angular rays—at least they are neither figured nor described.

---

*Unfigured Species.*

C. MURRAYANA, Pfr. *Murray Cliffs, Australia.*
C. CÆCILIA, Pfr. *New Hebrides.*
C. BASSI, Brazier. *Tasmania.*
C. LOTTAH, Petterd. *Tasmania.*
C. DANDENONGENSIS, Petterd. *Victoria, Australia.*
C. SUBDEPRESSA, Brazier. *Gipps Land, Victoria.*
C. OTWAYENSIS, Petterd, and var. ALPINA, Johnston (*Tasmania*). *Victoria.*
C. ALLECTA, Cox. *Ins. Upolu.*
C. GAWLERI, Brazier. *Adelaide, Australia.*
C. RADICALIS, Moüsson. *Ins. Vavao.*
C. CHIMMOI, Pfr. *Sunday Isl.; Kermandec Archip.*
C. ROTELLA, Brazier. *Mt. Wellington, Tasmania.*
C. MILLIGANI, Braz. (*C. scrupulus*, Cox). *Mt. Wellington, Tasmania.*
C. NUPERA, Brazier. *King George's Sound, S. W. Australia.*
C. DIANÆ, Pfr. *Diana's Peak, Ins. St. Helena.*

Section GERONTIA, Hutton, 1884.

C. PANTHERINA and C. CORDELIA, Hutton. *New Zealand.*
Both unfigured.

Section PYRRHA, Hutton, 1884.

C. GUTTULA, Pfr. Pl. 62, fig. 38.

Shell subimperforate, thin, very smooth, shining, pellucid, brownish corneous, suture smooth, submargined; whorls 5, somewhat convex, slowly increasing, periphery rounded.

Diam. 5 mill.

——— *New Zealand.*

*Unfigured Species.*

C. CRESSIDA, C. ADRIANA, C. PLANULATA and C. MIRANDA, all of Hutton. *New Zealand.*

Section PSYRA, Hutton, 1884.

C. DIMORPHA, Pfr. Pl. 62, fig. 39.

Narrowly perforate, thin, very closely striated and rather closely costulate, scarcely shining, diaphanous, light corneous tessellated with chestnut and maculated with the same color at the suture, spire not elevated; whorls 5, somewhat convex, the last rounded at periphery, higher than wide. Diam. 8·5 mill.

*New Zealand.*

C. TULLIA, Gray. Pl. 62, fig. 40.

Imperforate, thin, closely costulate, diaphanous, yellowish, tessellated with chestnut; whorls 5, somewhat convex, narrow, periphery obsoletely angulated. Diam. 4·5 mill.

*New Zealand.*

*Unfigured Species.*

C. CASSANDRA, Hutton, and C. VENULATA, Pfr. *New Zealand.*
C. NEGLECTA, Brazier. *Tasmania.*

Section THERASIA, Hutton, 1884.

C. CELINDE, Gray. Pl. 62, fig. 41.

Subperforate, membranously plicate, light brownish; whorls 5, the last obtusely angulated on the periphery. Diam. 4 mill.

*New Zealand.*

C. OPHELIA, Pfr. Pl. 62, fig. 42.

Perforate, thin, irregularly thread-striated, diaphanous, corneous, with narrow chestnut strigations; whorls 5, moderately increasing, the last subangulated on the periphery.

Diam. 8 mill.

? *Cape York, Australia, New Zealand.*

*Unfigured Species.*

C. DECIDUA, Pfr. *New Zealand.*

C. VALERIA, C. TAMORA, C. THAISA, Hutton. *New Zealand.*

Section THALASSIA, Albers, 1860.

A. *Imperforate.*

C. QUINTALI, Cox (unfigured). *Norfolk Island.*

B. *Perforate or umbilicate.*

a. *Ecarinate.*

C. IOTA, Pfr. Pl. 62, figs. 43.

Perforate, thin, closely costulate, not shining, yellowish corneous, reticulated and maculated with chestnut; whorls 5, moderately increasing, periphery rounded. Diam. 4 mill.

*New Zealand.*

*C. pilula*, Reeve (fig. 43), is a synonym.

Var. GRANUM, Pfr.

Spire conoidal, ribs finer and closer, umbilicus narrower.

Var. HYPOPOLIA, Pfr.

I have described this form on page 181 of the present work. Prof. Hutton says of it: "Some specimens are entirely horny cinereous (typical), but some are slightly spotted and others strongly spotted and marked with rufous, thus passing into *C. iota*."

C. RUSTICA, Pfr. Figs. 44, 45.

Perforate, thin, rather smooth, light brownish corneous; whorls 5, slightly convex. Diam. 8·5 mill.

*N. Australia.*

Is *C. inconspicua*, Forbes; *C. Crotali*, Cox, and *C. impexa*, Reeve (fig. 45).

C. GLABERRIMA, Pfr. Pl. 62, fig. 46.

Umbilicated, moderately solid, smooth, very shining, light yellowish corneous, suture obsoletely margined; whorls 5½, base whitish, flattened. Diam. 12 mill.

*Solomon's Is.*

Scarcely a member of this group.

C. FRICATA, Gould. Pl. 62, figs. 47–49.

Widely umbilicated, thin, greenish corneous, with radiating costulations above, some branching, smooth below; whorls $4\frac{1}{2}$, suture impressed. Diam. 17 mill.

*New South Wales.*

Reeve's figure does not represent the species.

C. CYGNEA, Benson. Pl. 62, fig. 50.

Widely umbilicated, thin, diaphanous, rather distantly membranously ribbed, corneous; whorls $4\frac{1}{2}$, convex. Diam. 4 mill.

*W. Australia.*

C. SUBLESTA, Benson. Pl. 62, fig. 51.

Rather widely umbilicated, thin, very minutely costulate-striate, reddish corneous above, corneous below; whorls 4, suture impressed. Diam. 3·3 mill.

*Australia.*

Reeve remarks that this shell proves to have an operculum, and consequently to be cyclostomoid; an evident error, as pointed out by Pfeiffer.

C. RADIARIA, Pfeiffer. Pl. 62, fig. 52.

Nearly covered perforate, somewhat thin, striulate, scarcely shining, diaphanous, yellowish white, with darker strigations above; whorls $5\frac{1}{2}$, periphery very obsoletely angulated, base flattened. Diam. 10 mill.

*Solomon's Is.*

C. TIMIDA, Hombr. et Jacq. Pl. 62, figs. 53–55.

Perforate, striate, grayish corneous; whorls 7, the last rounded. Diam. 11 mill.

*New Guinea.*

C. PORTIA, Gray. Vol. I, t. 60, f. 70–72.

This species is described on page 252, of Vol. I, as an Elæa; Pfeiffer places it in Thalassia. *C. Kappa*, Pfr. (Pl. 63, figs. 60–62), and *C. collyrula*, Reeve (Pl. 62, fig. 56), may be added to the synonymy.

C. SANDWICENSIS, Pfr. Pl. 62, fig. 57.

Umbilicated, discoidal, striated, somewhat shining, yellowish corneous; whorls 5–6, slowly increasing; umbilicus wide. Diam. 18 mill.

*Sandwich Is.*

b. *Subangulated.*

C. PUDIBUNDA, Cox. Pl. 62, figs. 58, 59.

Perforate, thin, translucent, smooth, slightly arcuately lineate and obsoletely spirally striate, shining, flesh-color; whorls 6, periphery obtusely angulated, usually opaque milky around the perforation. Diam. 16 mill.

*Richmond River, and Moreton Bay, Australia.*

c. *Carinate.*

C. ZELANDIÆ, Gray. Pl. 63, figs. 63, 64.

Perforate, pellucid, minutely striulate, light corneous variegated with chestnut strigations; whorls 5, the last carinate. Diam. 9·5 mill.

*New Zealand.*

Var. ANTIPODA, Hombr. et Jacq. Pl. 63, figs. 65–67.

Narrowly umbilicated, striated above, shining; grayish, strigated with chestnut; whorls 5½, the last carinate. Diam. 8 mill.

*Ins. Auckland.*

Var. AUCKLANDICA, Le Guillou.

An unfigured form, yellowish brown with red spots on the upper surface only; made a var. of *Zelandiæ* by Prof. Hutton.

C. TRAVERSI, Smith. Pl. 63, figs. 68–70.

Narrowly perforate, thin, somewhat glossy, corneous, with fine oblique wavy chestnut lines, scarcely visible except when held up to the light, and chestnut spots at the suture, obliquely arcuately striate by growth-lines, decussated by fine spiral striæ, above and below; whorls 5½, slowly enlarging, the last with carinate periphery. Diam. 11·5 mill.

*New Zealand.*

Distinguished from the last species by its larger size, narrower perforation, and minute spiral striæ.

C. CONVEXIUSCULA, Pfr. Pl. 63, fig. 71.

Perforate, thin, rugulosely striate, pellucid, light corneous; whorls 5½, periphery obtusely carinate. Diam. 12 mill.

*Ceylon.*

Placed by Pfeiffer in this group—of which it is scarcely a member.

C. AULOPSIS, Benson. Pl. 63, figs. 72, 73.

Perforate, obliquely minutely striulate, with very close spiral lines, translucent, somewhat shining, light corneous, becoming reddish towards the apex; whorls 5, periphery carinated.

Diam. 12 mill.

*Port Blair, Andaman Is.*

C. LIRATULA, Pfr. Pl. 63, figs. 74, 75.

Narrowly umbilicated, rather thin, striated, with thread-like spiral liræ, diaphanous, somewhat shining, light yellowish corneous; whorls $7\frac{1}{2}$, the last angulated, base smoother. Diam. 6 mill.

*Ceylon*, alt. 6000 ft.

C. DELTA, Pfr. Pl. 63, fig. 76.

Subcovered perforate, rather thin, opaque, striulate and foveolate, flesh white; whorls 6, periphery rather acutely carinated.

Diam. 8 mill.

*Australia.*

*C. conoidea* and *C. fenestrata*, Cox, are synonyms.

---

*Unfigured Species of Thalassia.*

C. CHORDATA, Pfr. *New Zealand.*

C. ANNULUS and C. SAPPHO, Brazier. *New Guinea.*

C. UNISULCATA, Mousson (*C. laqueata*, Baird). *Viti Islands.*

C. WATERHOUSEI, Cox (*C. subangulata*, Ad. & Ang.). *Australia.*

C. EXSERTA, Pfr. *Sandwich Is.*

C. MICROCONUS, Mousson. *Viti Islands.*

C. FLOSCULUS, Cox. *Norfolk Isl.*

C. GAYNDAHENSIS, Brazier. *Gayndah, Queensland.*

C. PROPINQUA, Hutton. *New Zealand.*

C. OBNUBILA, Reeve (syns. *H. igniflua*, Reeve, and *H. sigma* and *H. lambda*, Pfr.). This species, with synonyms as above, is included by Prof. Hutton in the New Zealand species of Thalassia. I have described them in Paryphanta, vol. i, 129.

# APPENDIX.

## Vol. I.

Streptaxis cavicola, Gredler.

I have mentioned this on p. 81 as an unfigured species; Möllendorff unites with it, as a juvenile—

Conulus infracinctus, Heude. Pl. 64, figs. 9–11.

Narrowly umbilicated; whorls 6, narrow, slowly enlarging, suture deep, last whorl with a thread-like peripheral line, spirally costulate above it, smooth and shining on the base, fulvous.

Diam. 5·5 mill.

*Tchenkeou, China*

Micromphalia alveolus, Gassies. Pl. 63, figs. 77–79.

Deeply narrowly umbilicated, rather thin, closely lamelliformly costulate; chestnut-brown, somewhat regularly spotted with white, the spots showing within the aperture; whorls $4\frac{1}{2}$.

Diam. 5 mill.

*Prony Bay, N. Caledonia.*

Related to *M. Corymbus*, Crosse (Vol. i, p. 177). ///

## Vol. II.

Nanina infantilis, Gredler. Pl. 64, fig. 18.

Narrowly umbilicated, hyaline white, chestnut banded, very shining, lightly striulate; whorls $5\frac{1}{2}$. Diam. 7 mill.

*China.*

The position of this mollusk is uncertain, the dentition resembling that of Glandina rather than Nanina.

Nanina buccata, Heude. Pl. 64, figs. 15–17.

Umbilicus moderate, shell rather solid, shining, orange fulvous; whorls 5, the last whorl obtusely angulated on the periphery, peristome white-lipped within. Diam. 27 mill.

*Yang-tze-Kiang, China.*

Nanina flavopurpurea, Heude. Pl. 64, figs. 19, 20.

Narrowly umbilicated, shell rather solid; whorls $4\frac{1}{2}$, the last

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rapidly increasing; violet-brown, with whitish oblique pliciform streaks, periphery obscurely angulated. Diam. 40 mill.

*Yang-tze-Kiang, China.*

NANINA FARGASIANA, Heude. Pl. 64, figs. 12–14.

Very narrowly umbilicated, fragile, vitreous; whorls 6, slowly increasing. Diam. 13 mill.

*Tchenkeou, China.*

NANINA DISTORTA, Heude. Pl. 64, figs. 24–26.

Imperforate, vitreous, fulvous; whorls 5, slowly increasing, striulate. Diam. 8 mill.

*Tchenkeou, China.*

NANINA UNICA, Heude. Pl. 64, figs. 30–32.

Narrowly umbilicated, pellucid, whitish; whorls $5\frac{1}{2}$, slowly increasing. Diam. 17 mill.

*Yang-tze, near Koue-tcheou-fou, China.*

NANINA SCIADOPHILA, Heude. Pl. 64, figs. 35–37.

Rather narrowly umbilicated, fulvous; whorls 5, conspicuously striate, sulcate at the suture. Diam. 16 mill.

*Tchenkeou, China.*

NANINA DERELICTA, Heude. Pl. 64, figs. 27–29.

Narrowly umbilicated; whorls 4, slowly increasing. Diam. 8 mill.

*Tchenkeou, China.*

NANINA CAMPYLONOTA, Tapparone-Canefri. *New Guinea.*

ARIOPHANTA DELAVAYANA, Heude. Pl. 64, figs. 21–23.

Widely umbilicated, sinistral, solid, with strong oblique striæ, reddish brown above, whitish below; whorls 6, slowly increasing, periphery obtusely carinated. Diam. 55 mill.

*Lolo and Talifou, China.*

ARIOPHANTA WELDII, Tenison-Woods.

An unfigured, minute species, diam. 1·5 mill; probably very young or embryonic.

*Tasmania.*

ARIOPHANTA SALANGANA, Martens. Pl. 63, fig. 80.

Sinistral, narrowly umbilicated, distantly radiately subplicate, closely spirally rugulosely striate, light brownish, narrowly unifasciate with chestnut; whorls 5. Diam. 39–44 mill.

*Ins. Salanga, Malacca.*

Caldwellia Boryana, Morelet. Pl. 63, figs. 81, 82.

Imperforate, very thin, not shining, incremental lines irregularly rugulose, with close spiral striæ; whorls 4–5, periphery obtusely angulated. Diam. 15 mill.

*Mauritius.*

Stylodonta Caldwelli, Barclay (unfigured). Page 27.

This proves to be a Patula, and will be described and figured in Vol. III.

Rhysota Eas, Dohrn (unfigured). *Madagascar.*

Rhysota Achilles, Brazier (unfigured). *New Guinea.*

Rhysota limbifera, Martens (p. 28).

Dr. von Martens has recently described a var. *Bangaiensis.*

Hemiplecta Doriæ, Tapparone-Canefri. *New Guinea.*

Trochonanina Schmeltziana, Mousson (p. 47).

Mr. C. F. Ancey writes to me: "*Helix Tongana*, Quoy (vol. i, 161), is not a Vitrinoconus; it is *very* closely allied to *Trochonanina Schmeltziana.*"

Sitala bifilaris, Heude. Pl. 64, figs. 33, 34.

Imperforate; whorls 9, slowly increasing, angulate, smooth, very minutely striate, brownish. Diam. 6 mill.

*Tchenkeou, China.*

Sitala petasus-sinensis, Heude. Pl. 64, figs. 38, 39.

Imperforate, thin, pellucid; whorls 8, slowly increasing, acutely carinated, fulvous. Diam. 13 mill.

*Tchenkeou, China.*

Kaliella sphæra, Heude. Pl. 63, figs. 83–85.

Narrowly umbilicated, fragile; whorls 5, slowly increasing, the last with an obsolete thread-like peripheral carina.

Diam. 7·5 mill.

*Tchenkeou, China.*

Kaliella pyramis, Heude. Pl. 63, figs. 100–2.

Narrowly umbilicated; whorls 6, striate above, smooth below, fulvous, suture submargined; the last whorl with an obsolete thread-like carina. Diam. 5½ mill.

*Tchenkeou, China.*

KALIELLA FILOCINCTA, Heude. Pl. 63, figs. 3–5.

Imperforate, pellucid, costulate above, brown; whorls 6, the last with a conspicuous thread-like carina. Diam. 7·5 mill.

*Tchenkeou, China.*

KALIELLA CUNEUS, Heude. Pl. 63, figs. 6–8.

Narrowly umbilicated, fulvous, scabrously obliquely costulate above, smooth below; whorls 7, slowly increasing, the last carinate, suture impressed. Diam. 7 mill.

*China.*

XESTA VITELLUS, Shuttlew. (p. 69).

Has been found varying in color as much as *N. citrina*, one variety being evidently the *Hemiplecta Clairvillia*, Fér. (p. 35). It should take the latter, being the oldest name.—MARTENS, Sitzb. Berlin, 113, 1886.

XESTA SIBYLLA, Tapparone-Canefri. *Celebes.*

The publication containing this and other species came to hand too late to include them in their proper places.

XESTINA ALBATA, Blandford (p. 83).

This name being preoccupied by Fagot for a quaternary fossil, Mr. Ancey changes it to *X. lucublanda*. He also removes it to the Helicidæ, in the neighborhood of the group Fruticicola.

MACROCHLAMYS KREFFTI, Cox. Pl. 63, figs. 98, 99.

Perforate, thin, pellucid, smooth, very glossy, microscopically striated, brownish yellow; whorls 5, the last with rounded periphery, suture slightly margined. Diam. 12·5 mill.

*Cape York, and near Cape Flattery, Australia.*

On page 105 I follow Dr. Cox in considering his *H. Kreffti* a synonym of *villaris*, Pfr. The latter species, as figured by Reeve, appears to differ specifically from Cox's figure.

MICROCYSTIS ORBICULUM, Tapparone Canefri. *N. Guinea.*

MICROCYSTIS BRUIJNII, Tapparone-Canefri. *N. Guinea.*

SESSARA BOUYERI, Crosse and Fischer. Pl. 63, fig. 90.

Imperforate, rather thin, smooth, pellucid, very shining, fulvous corneous; whorls $5\frac{1}{2}$, aperture with two basal teeth, the outer one the largest. Diam. 7·65 mill.

*Pulo Condor, Cochin China.*

Sessara infrendens, Gould (p. 132).

The references to figures for the varieties should be Var. *capessens*, figs. 58–60; Var. *Tickelli*, fig. 51.

Hyalina Aruensis, Tapparone-Canefri. *New Guinea.*

Vitrea subeffusa, Böttger (p. 143).

Var. Daghestana, Böttger. Pl. 63, fig. 89.

Smaller than the type, more globose, spire higher, base more convex, etc. Diam. 3 mill.

*Near Kuba, Daghestan.*

Vitrea subhydatina, V. Craverii, V. Bazzettæ, Pollonera (unfigured). *Piedmont.*

Polita polygyra and Piniana, Pollonera (unfigured). *Piedmont.*

Polita decipiens, Böttger. Pl. 63, figs. 86–88.

Intermediate between *H. Caspia* and *H. Lederi*, Böttger. Differs from *H. Villæ*, Mort., in being much smaller, distinctly and regularly striated, spire higher, subconvex, last whorl narrower. Diam. 10·5 mill.

*Mt. Schach-Dagh, Western Caucasus.*

Polita Derbentina, Böttger. Pl. 63, fig. 93–95.

Related to the group of *H. cellaria*, Müll., and *H. Komarowi*, Böttger, but more depressed, with wider, less numerous whorls. Diam. 9·5 mill.

*Near Derbent, Caspian Sea.*

Polita raterana, Servain (unfigured). *So. France, Spain.*

Polita chersa, Bourg. *French Pyrenees.*

Conulus Dorri, Wattebled. Pl. 63, fig. 91.

Minute, subrimate, thin, fragile, hyaline, scarcely striulate, light yellowish corneous; whorls 4½. Diam. 3·5 mill.

*Hue, Annam.*

Conulus Hueensis, Wattebled. Pl. 63, fig. 92.

Very minute, subrimate, thin, subpellucid, scarcely striate, somewhat greenish corneous; whorls 3½. Diam. 1·5 mill.

*Hue, Annam.*

Conulus Utillensis, Ancey (unfigured). *Honduras.*

ÆGOPINA HERCULEA, Rambur. Pl. 63, figs. 96, 97.

Openly umbilicated, scarcely striulate; whorls 5½.
Diam. 19·5 mill.

*Monaco.*

Related to *H. olivetorum;* and, so far, only found fossilized.

HYALINA LENTIFORMIS, Kobelt (unfigured). *Minorca.*

## Genus THYROPHORELLA, Greef., 1882.

T. THOMENSIS, Greef.

Shell sinistral, thin, transparent, nearly orbicular, with a slight yellowish epidermis; umbilicated; whorls sharply keeled; aperture half-round, with a sharp simple margin, furnished with a lid or extension of the upper portion of the peristome, which is flexible, opening for the extrusion of the animal, closing the aperture when it is withdrawn.

*Isl. St. Thomas, W. Coast of Africa.*

This curious and still unfigured mollusk has given rise to much speculation among conchologists. The lid-like extension has been regarded as analogous to a valve, making it a bivalve terrestrial shell; and the shell has also been supposed to be the operculate larva case of some insect. Recent investigation has shown it to be a true mollusk and to possess the dentition of the Zonitidæ

# INDEX TO GENERA

CONTAINED IN THIS VOLUME.

As the monograph of the heliciform land shells will extend through several volumes of the Manual it is deemed advisable to defer the publication of the index and synonymy of the species until its completion. An index to the generic and subordinate groups will accompany each volume.


Ægopina, Kobelt, 12, 188, 221
Ariophanta, Desmoulins. 5, 15, 217
Aulocopus, Pfeffer. = Eurypus, Semper.
Bensonia, Pfeiffer, . . 8, 107
Caldwellia, H. Adams. 6, 27, 218
Chanomphalus, Strebel. =Pseudohyalina, Morse.
Charopa, Albers, . . 14, 208
Cœlatura, Pfeiffer, . . 5, 21
Conulema, Stolicz. = Sitala, H. Adams.
Conulopolita, Böttger, 11, 181
Conulus, Fitz, 11, 172, 216, 220
Dierama, Pfeiffer, . . 11, 181
Durgella, Stolicz., . . 8, 111
Erepta, Albers. = Stylodonta, Jan.
Euhyalina, Albers. = Polita, Held.
Euplecta, Semper, . . 6, 46
Eurypus, Semper, . . 8, 110
Gastrodonta, Albers, . 12, 197
Gerontia, Hutton, . . 14, 210
Guillainia, Bourg., . . 9, 133
Guppya, Mörch. = Stenopus, Guilding.
Habroconus, Crse. & Fisch. = Stenopus, Guilding.
Hamya, Bourg., . . . . 7
Haplotrema, Ancey, 13, 208
Helicodiscus, Morse, 12, 200
Helicopsis, Beck. = Microcystis, Beck.
Hemiplecta, Albers, 6, 35, 218
Hyalinia, Fér. . . 10, 137, 220
Inozonites, Semper = Euplecta, Semper.
Janulus, Lowe, . . 13, 204
Kaliella, Blanford, 7, 61, 218
Lamprocystis, Pfeffer = Microcystina, Mörch.
Ledoulxia, Bourg. = Martensia, Semper.
Macroceras, Semper, . 8, 107
Macrochlamys, Benson, 8, 87, 219
Macrocyclis, Albers (in part) = Selenites, Fisch, 13
Martensia, Semper, . . 6, 50
Mesomphix, Rafin. . 12, 196
Microcystina, Mörch, . 9, 124
Microcystis, Beck, 8, 112, 219
Micromphalia, Ancey, . . 216
Moreletia, Gray, . . 11, 185
Mörchia, Albers, . . 13, 208
Nanina, Gray, . . . . 4, 216
Nautilinus, Mousson, 11, 172
Odontosagda, Martens, 12, 201
Omphalina, Rafinesque, 11, 183

Orobia, Albers = Macrochlamys, Benson.
Orpiella, Gray, . . . 7, 68
Oxytes, Pfeiffer, . . . 9, 129
Pachystyla, Mörch, . . 5, 24
Patulopsis, Strebel, . 12, 188
Petasia, Beck = Conulus, Fitz.
Phacussa, Hutton, . . 11, 181
Polita, Held, . . 10, 145, 220
Proserpinula, Albers, 12, 201
Pseudohyalina, Morse, 13, 201
Psyra, Hutton, . . 14, 211
Pycnogyra, Strebel, 13, 204
Pyrrha, Hutton, . . 14, 211
Retinella, Shuttl. = Ægopina, Kobelt.
Rhysota, Albers, . 6, 28, 218
Rotula, Albers, . . . 5, 22
Rotularia, Mörch. . . 6, 47
Sagdinella, Mörch. . . 9, 126
Selenites, Fischer, . 13, 205
Sessara, Albers, . 9, 131, 219
Sitala, H. Adams, 7, 52, 218
Sophina, Benson, . . 8, 109
Stenopus, Guilding, . 11, 181
Streptaxis, Gray, . . . 216
Striatura, Morse, . 13, 201
Stylodonta, Jan. . 5, 26, 218
Thalassia, Albers. . 14, 212
Thapsia, Albers, . . . 9, 126
Therasia, Hutton, . 14, 211
Thyrophorella, Greef, . . 221
Trochonanina, Mouss. 6, 47, 218
Trochozonites, Semper, 7, 51
Ventridens, Binn. & Bland. 12, 199
Vitrea, Fitzinger, 10, 137, 220
Xesta, Albers, . 7, 68, 219
Xestina, Pfeffer, . 7, 81, 219
Zingis, Martens, . . . 7, 51
Zonites, Montfort, . . 9, 134
Zonitoides, Lehmann, 10, 171
Zonyalina, Martens, 11, 187

# REFERENCE TO PLATES.

## ZONITIDÆ.

### Plate 1.

FIGURE. PAGE.

1. Ariophanta Nicobarica, Chemn. Conch. Indica, t. 52, f. 1, . . . . . 15
2. Ariophanta Nicobarica, Chemn. Reeve, Conch. Icon., f. 1157, . . . . . 15
3–5. Ariophanta Laidlayana, Benson. Conch. Ind., t. 58, f. 3–5, . . . . . 15
6. Ariophanta Thyreus, Benson. Conch. Ind., t. 27, f. 6, 15
7. Ariophanta Cysis, Benson. Reeve, Conch. Icon., f. 737, 15
8. Ariophanta Ampullarioides, Reeve (= Cysis). Ibid., f. 1423, . . . . . 16
9. Ariophanta auris, Pfr. Ibid., f. 1382, . . . . 16
10. Ariophanta auris, Pfr. Küster, Conch. Cab., t. 176, f. 10, 16
11. Ariophanta intumescens, Benson. Novit. Conch. III, t. 106, f. 12, . . . . . 16

FIGURE. PAGE.
12. Ariophanta Bajadera, Pfr. Conch. Ind., t. 111, f. 5, . 16
13, 14. Ariophanta Ammonia, Val. (= Bajadera). Fer. Hist. Moll., t. 37 *a*, f. 1, . . . . . 16
15. Ariophanta retrorsa, Gould. Küster, Conch. Cab., t. 110, f. 5, . . . . . 16
16. Ariophanta immerita, Blanf. Jour. As. Soc. Beng., t. 3, f. 4, 1880, . . . . . 16

## Plate 2.

17. Ariophanta interrupta, Benson. Austen, Shells Ind., pl. iv, t. 4, f. 2, . . . . . 17
18. Ariophanta interrupta, Benson. Reeve, Icon., f. 1159, 17
19. Ariophanta Himalayana, Lea. Observ. I, t. 19, f. 66, . 17
20. Ariophanta lævipes, Müller. Küster, Conch. Cab., t. 84, f. 23, . . . . . 17
21. Ariophanta trifasciata, Chemn. (= lævipes, var.), Ibid., t. 84, f. 20, . . . . . 17
22. Ariophanta cyclotrema, Benson. Conch. Indica, t. 28, f. 10, . . . . . 17
23. Ariophanta Brookei, Ads. and Reeve. Reeve, Conch. Icon., f. 377, . . . . . 17
24. Ariophanta granaria, Bock. Zool. Proc., t. 55, f. 1, 1881, 18
25. Ariophanta Sumatrensis, Mousson. Novit. Conch., t. 115, f. 1, . . . . . 18
26. Ariophanta sannio, Pfr. Reeve, Conch. Icon., f. 1271, 18
27, 28. Ariophanta Hugonis, Pfr. Novit. Conch. III, t. 74, f. 1, 3, . . . . . 18
29. Ariophanta Mindaiensis, Bock. Zool. Proc., t. 55, f. 7, 1881, . . . . . 19
30, 31. Ariophanta regalis, Benson. Küster, Conch. Cab., t. 141, f. 5, 7, . . . . . 19

## Plate 3.

32. Ariophanta Marseveensis, Bock. Zool. Proc., t. 55, f. 2, 1881, . . . . . 19
33. Ariophanta saccata, Pfr. Reeve, Conch. Icon., f. 1278, 19
34. Ariophanta Janus, Chemn. Ibid., f. 494, . . . 19
35. Ariophanta Balesteriana, Lea. Trans. Am. Philos. Soc., vii, t. 12, f. 10, . . . . . 20
36. Ariophanta Mackensiana, Soul. Voy. Bonite, t. 28, f. 27, 19
37. Ariophanta Albersi, Martens. Preuss. Exped., t. 11, f. 3, . . . . . 20
38. Ariophanta Rumphii, Busch. Reeve, Conch. Icon., f. 480, . . . . . 20

FIGURE. PAGE.
39, 40. Ariophanta clypeus, Mousson. Novit. Conch., iv, t. 115, f. 34, . . . . . 20
41. Ariophanta foveata, Pfr. Reeve, Conch. Icon., f. 1272, 20
42. Ariophanta nasuta, Metcalfe, Ibid., f. 1031, . . . 21
43. Cœlatura cœlatura, Fér. Küster, Helix, t. 29, f. 3, . 21
44. Cœlatura Duponti, Morelet. Novit. Conch., v, t. 152, f. 1, . . . . . 21
45. Cœlatura sulcifera, Barclay (= Duponti). Zool. Proc., t. 4, f. 12, 1868, . . . . . 21
46. Cœlatura Bewsheriana, Morelet. Jour. de Conch., t. 1, f. 1, 1875, . . . . . 21
47. Cœlatura simplex, Lam. Fér. Hist. Moll., t. 26 *b*, f. 6, 21

## Plate 4.

48, 49. Cœlatura rufa, not of Lesson (= scalpta, Mart.). Reeve, Conch. Icon., f. 193, *a*, *b*, . . . . 22
50, 51. Cœlatura semifusca, Desh. (= scalpta). Voy. Belanger, t. 1, f. 8, 9, . . . . . 22
52, 53. Rotula linophora, Morelet. Series Conchyl. II, t. 4, f. 6, . . . . . 22
54, 55. Rotula Rawsonis, Barclay (= semicerina). Küster, Conch. Cab., t. 147, f. 3, 4, . . . . 22
56, 59. Rotula bifuga, Stolicz. Jour. As. Soc. Beng. XLII, t. 1, f. 4–7, . . . . . 22
60. Rotula argentea, Reeve. Conch. Icon., f. 1434, . . 22
61, 62. Rotula anceps, Gould. Küster, Conch. Cab., t. 88, f. 9, 10, . . . . . 23
63–65. Rotula serrula, Bens. Ibid., t. 119, f. 21–23, . . 23
66. Rotula Bensoni, Busch. Conch. Ind., t. 132, f. 10, . 23
67. Rotula solidula, Pfr. Conch. Icon., f. 1367, . . 23
68, 69. Rotula climacterica, Benson. Küster, Conch. Cab., t. 141, f. 9, 10, . . . . . 23
70, 71. Rotula arata, Blanford. Conch. Ind., t. 84, f. 9, 10, 23
72, 73. Rotula Austeni, Blanford. Ibid., t. 50, f. 8, 9, . 23
74. Caldwellia mucronata, Pfr. (= phylirina). Reeve, Conch. Icon., f. 197, . . . . . 27

## Plate 5.

75, 76. Pachystyla detecta, Fér. Küster, Conch. Cab., t. 92, f. 20, 21, . . . . . 25
77. Pachystyla Bewsheri, Ad. (= detecta). Zool. Proc., t. 3, f. 18, 1872, . . . . . 25
78. Rotula recedens, Pfr. Reeve, Conch. Icon., f. 1309, . 24
79, 80. Rotula Kashmirensis, Nevill. 2d Yarkand Exped., f. 13, 14, . . . . . 24

FIGURE. PAGE.

81, 82. Caldwellia imperfecta, Desh. Moll. Reunion, f. 24, 25, . . . . . 28
83. Caldwellia Cernica, H. Adams. Zool. Proc., t. 4, f. 3, 1868, . . . . . 28
84. Stylodonta unidentata, Chemn. Conch. Icon., t. 39, f. 156 *b*, . . . . . 26
85. Stylodonta unidentata, Chemn. Specimen, . . . 26
86. Stylodonta cepoides, Lea. Küster, Conch. Cab., t. 41, f. 3, . . . . . 26
87. Stylodonta cepoides, Lea. Reeve, Conch. Icon., f. 39, 26
88. Stylodonta Studeriana, Fér. Ibid, t. 39, f. 153, . . 26

## Plate 6.

89. Pachystyla inversicolor, Fér. Hist. Moll., t. 58 *a*, f. 11, 24
90. Pachystyla inversicolor, Fér. Reeve, Conch. Icon., f. 177 *a*, . . . . . 24
91, 92. Pachystyla inversicolor, Fér. Hist. Moll., t. 58 *a*, f. 1, 4, . . . . . 24
93. Pachystyla Mauritiana, Pfr. Küster, Conch. Cab., t. 47, f. 1, . . . . . 24
94. Pachystyla Mauritiana, Pfr. Reeve, Conch. Icon., f. 189 *b*, . . . . . 24
95. Pachystyla leucostyla, Pfr. (= Mauritiana). Ibid., f. 191 *a*, . . . . . 24
96, 97. Pachystyla Mauritianella, Morelet. Ser. Conch., ii, t. 4, f. 2, . . . . . 25
98. Pachystyla Nevilli, H. Adams. Zool. Proc., t. 19, f. 5, 1867, . . . . . 25
99. Pachystyla Rodriguezensis, Crosse. Jour. de Conch., t. 8, f. 1, 1874, . . . . . 26
100. Pachystyla rufozonata, H. Adams. Zool. Proc., t. 19, f. 4, 1867, . . . . . 25
1. Pachystyla Barclayi, Benson. Conch. Icon., f. 1178, . 25
2. Pachystyla Eudeli, Desh. (= Barclayi). Moll. Reunion, t. 10, f. 18, . . . . . 25
3, 4. Pachystyla Frappieri, Desh. (= delecta, Fér.). Moll. Reunion, t. 10, f. 15, 16, . . . . . 25
5. Stylodonta suffulta, Benson (= odontina, Morelet). Conch. Icon., f. 1175, . . . . . 27
6. Stylodonta Lightfooti, Pfr. (= odontina, Morelet). Ibid., f. 719, . . . . . 27
7. Stylodonta stylodon, Pfr. Küster, Conch. Cab., t. 28, f. 18, . . . . . 27
8. Stylodonta scalprum, Val. Hist. Moll., t. 64 *a*, f. 4, . 27
9. Ariophanta Cambodiensis, Reeve. Novit. Conch., t. 47, f. 1, . . . . . 18

## Plate 7.

FIGURE. PAGE.
10–12. Rhysota striatula, Semper. Moll. Philipp., t. 2, f. 4, 35
13. Rhysota globosa, Semper. Moll. Philipp., t. 2, f. 3 *c*, 35
14. Rhysota tumens (not Fér.) = virens, Mart. Conch. Icon., f. 477, . . . . . 28
15–16. Rhysota limbifera, Martens. Novit. Conch., iv, t. 28, f. 1, 2, . . . . . 28
17. Rhysota stolephora, Val. Hist. Moll., t. 100, f. 3, . 29
18, 19. Rhysota sagittifera, Pfr. Küster, Conch. Cab., t. 32, f. 10, 11, . . . . . 29
20. Rhysota sagittifera, var. hepatica, Reeve. Conch. Icon., f. 9, . . . . . 29
21. Rhysota erratica, Heude. Hist. Nat. Fleuve Bleue, t. 13, f. 3, . . . . . 28
22. Rhysota Fuchsiana, Heude, Ibid., t. 19, f. 6, . . 35

## Plate 8.

23. Rhysota Borneensis, Pfr. Reeve, Conch. Icon., f. 1379, 29
24. Rhysota divitija, Semper. Küster, Conch. Cab , t. 164, f. 5, . . . . . 29
25. Rhysota Sowerbyana, Pfr. Reeve, Conch. Icon., f. 386, . . . . . 29
26. Rhysota distincta, Pfr. Ibid , f. 465, . . . . 30
27. Rhysota Neptunus, Pfr. Novit. Conch., ii, t. 48, f. 1, 34
28. Rhysota pernobilis, Fér. Ibid., ii, t. 48, f. 4, . . 33
29. Rhysota ovum, Val. Küster, Conch. Cab., t. 25, f. 1, 30

## Plate 9.

30. Rhysota rhea, Pfr. Specimen, . . . . . 30
31. Rhysota Mindanensis, Semper. Moll. Philipp., t. 2, f. 1 *a*, . . . . . 31
32. Rhysota cidaris, Gray (= rugata, Martens). Conch. Icon., f. 464, . . . . . 36
33. Rhysota Clairvillia, Rve. (= rugata, Mart.). Ibid., f. 1454, . . . . . 36
34. Rhysota hepatizon, Gould. Morelet, Voy. Welw., t. 2, f. 7, . . . . . 34
35. Rhysota Gervaisi, Dubrueil. Ann. Soc. Mal. Belg., ii, t. 3, . . . . . 31

## Plate 10.

36. Rhysota basileus, Benson. Küster, Conch. Cab., t. 167, f. 3, . . . . . 31
37. Rhysota Mülleri, Pfr. Fér. Hist. Moll., t. 100, f. 13, . 31
38. Rhysota maxima, Pfr. Conch. Icon., f. 1015, . . 31

FIGURE. PAGE.

39. Rhysota Oweniana, Pfr. Ibid., f. 1013, . . . . 32
40. Rhysota Lamarckiana, Lea. Küster, Conch. Cab., t. 26, f. 4, . . . . . 32
41. Rhysota caducior, Reeve (= Lamarckiana, var.). Conch. Icon., f. 12, . . . . . 32
42. Rhysota porphyria, Pfr. Küster, Conch. Cab., t. 32, f. 12, . . . . . 32
43. Rhysota Martini, Pfr. Conch. Icon , f. 1356, . . 33

PLATE 11.

44. Rhysota Antoni, Semper. Moll. Philipp., t 2, f. 2 *a*, . 32
45. Rhysota Uranus, Pfr. Novit. Conch., t. 73, f. 1, . 33
46. Rhysota Zeus, Jonas. Küster, Conch. Cab., t. 26, f. 1, 32
47. Rhysota amphidroma, Mart. Preuss. Exped., t. 11, f. 5, 33
48. Rhysota Ribbei, Böttger. Jahrb. Mal. Gesell., 1883, t. 11, f. 1, . . . . . 33
49, 50. Hemiplecta Clairvillia, Fér. Hist. Moll., t. 91, f. 1, 2, 35
51. Hemiplecta mumia, Hombr. et Jacq. Voy. Astrol. et Tel., t. 3, f. 5, . . . . . 36
52. Hemiplecta Humphreysiana, Lea. Küster, Conch. Cab., t. 31, f. 3, . . . . . 36
53. Hemiplecta Humphreysiana, var. complanata, Mart. Preuss. Exped., t. 10, f. 3, . . . . . 36

PLATE 12.

54. Hemiplecta gemina, Busch (= Humphreysiana, var.) Preuss. Exped., t. 10, f. 4, . . . . . 36
55. Hemiplecta undosa, Blanf. Conch. Ind., t. 111, f. 3, . 36
56. Hemiplecta Pluto, Pfr. Novit. Conch., t. 55, f. 8, . 37
57. Hemiplecta Rosamonda, Benson. Conch. Ind., t. 59, f. 6, 37
58. Hemiplecta nobilis, Pfr. Küster, Conch. Cab., t. 125, f. 1, 37
59. Hemiplecta Herklotziana, Dohrn. Novit. Conch., v, t. 150, f. 4, . . . . . 37
60. Hemiplecta bulla, Pfr. Semper, Moll. Philipp., t. 1, f. 3, 37
61. Hemiplecta bulla, Pfr. Küster, Conch. Cab., t. 33, f. 3, 37
62. Hemiplecta Chenui, Pfr. Conch. Ind., t. 27, f. 4, . 38
63. Hemiplecta Beddomei, Blanford. Ibid., t. 159, f. 10, 38

PLATE 13.

64. Hemiplecta cisparica, Blanford. Conch. Ind., t. 112, f. 4, 38
65. Hemiplecta Cuvieriana, Lea. Küster, Conch. Cab., t. 26, f. 8, . . . . . 38
66. Hemiplecta Cuvieriana, Lea. Conch. Icon., f. 28, . 38
67, 68. Hemiplecta exilis, Müller. Küster, Conch. Cab., t. 137, f. 10, 12, . . . . . 38

FIGURE. PAGE.

69. Hemiplecta explanata, Quoy. Martens Monatsb. Berlin, t. 1, f. 1, 1877, . . . . . 39
70. Hemiplecta divisa, Forbes. Conch. Icon., f. 1450, . 39
71, 72. Hemiplecta Cartereti, Smith. Zool. Proc., t. 22, f. 5, 1884, . . . . . 40
73. Hemiplecta Novæ-Hiberniæ, Quoy. Reeve, Conch. Icon., f. 429, . . . . . 39
74. Hemiplecta Darondeaui, Souleyet. Voy. Bonite, t. 28, f. 21, . . . . . 40
75. Hemiplecta Souleyetiana, Pfr. Conch, Icon., f. 378, . 40
76. Hemiplecta Donovani, Pfr. Küster, Conch. Cab., t. 147, f. 8, . . . . . 40
77. Hemiplecta Isabellina, Pfr. Reeve, Conch. Icon., f. 1280, 40
78. Hemiplecta Travancorica, Benson. Conch. Ind., t. 50, f. 6, 41
79, 80. Hemiplecta centralis, Mousson. Moll. Java., t. 2, f. 1, 41
81. Hemiplecta acuducta, Benson. Conch. Icon., f. 739, . 40
82. Hemiplecta ceraria, Benson. Ibid., f. 1291, . . 41
83–85. Hemiplecta Riedelii, Martens. Preuss. Exped., t. 8, f. 5, . . . . . 41
86. Hemiplecta Riedelii, Martens. Küster, Conch. Cab., t. 157, f. 7, . . . . . 41

## Plate 14.

87. Hemiplecta variolosa, Pfr. Conch. Icon., f. 1130 *a*, . 42
88. Hemiplecta novella, Pfr. Ibid., f. 1294, . . . 41
89. Hemiplecta cymatium, Benson. Novit. Conch., i, t. 17, f, 1, . . . . . 42
90. Hemiplecta Chevalieri, Souleyet. Voy. Bonite, t. 28, f. 24, . . . . . 42
91, 92. Hemiplecta densa, Ads. and Reeve. Küster, Conch. Cab., t. 145, f. 5, 7, . . . . . 42
93. Hemiplecta densa, Ads. and Reeve. Conch. Icon., f. 375, 42
94. Hemiplecta Schumacheriana, Pfr. Küster, Conch. Cab., t. 134, f. 11, . . . . . 43
95. Hemiplecta semiglobosa, Pfr. Specimen, . . . 43
96, 97. Hemiplecta Panayensis, Brod. Küster, Conch. Cab., t. 30, f. 1, 3, . . . . . 44
98. Hemiplecta enisa, Blanford. Jour. As. Soc. Beng., xlix, t. 3, f. 2, . . . . . 45
99. Hemiplecta tinostoma, Blanford. Ibid., t. 3, f. 1, . 45
100. Hemiplecta compluviata, Cox. Zool. Proc., t. 52, f. 10, 1871, . . . . . 44

## Plate 15.

1, 2. Hemiplecta semigranosa, Sowb. (= Blainvilleana, Lea). Küster, Conch. Cab., t. 34, f. 3, 4, . . 44

FIGURE. PAGE.

3, 4. Hemiplecta Gordoniæ, Benson. Conch. Ind., t. 27, f. 1, 2, . . . . . 45
5. Xestina semirugata, Beck. Conch. Icon., f. 391, . 81
6. Xestina Tranquebarica, Fabr. Ibid., f. 394, . . 81
7. Xestina Cochinensis, Pfr. Jour. de Conch., 3 ser., ii, t. 10, f. 4, . . . . . 81
8. Xestina Waandersiana, Zollinger. Jour. de Conch., 2 ser., ii, t. 6, f. 1, . . . . . 81
9. Xestina Baliensis, Mousson. Ibid., t. 6, f. 6, . . 81
10. Xestina fulvida, Pfr. Küster, Conch. Cab., t. 31, f. 11, 82
11. Xestina conoidalis, Ad. and Reeve. Conch. Icon., f. 523, 82
12. Xestina inquinata, Busch. Küster, Conch. Cab., t. 31, f. 5, . . . . . 82
13. Xestina semisculpta, Martens. Novit. Conch., iv, t. 128, f. 6, . . . . . 82
14–16. Xestina Steuersii, Shuttl. (= cincta, Lea). Novit. Conch., iii, t. 73, f. 8, . . . . . 82
17, 18. Xestina Steuersii, Shuttl. (= cincta, Lea), Preuss. Exped., t. 8, f. 6, *b*, . . . . . 82
19. Xestina Gardeneii, Pfr. Conch. Icon., f. 446, . . 82

## Plate 16.

20–22. Xestina Dohrniana, Pfr. Novit. Conch., iii, t. 73, f. 11–13, . . . . . 83
23. Xestina textrina, Benson Novit. Conch , i, t. 36, f. 5, 83
24. Xestina textrina, Benson Conch. Ind., t. 52, f. 2, . 83
25. Xestina Theodori, Phil. Reeve, Conch. Icon., f. 1188, 83
26. Xestina Sophiæ, Gaskoin. Conch. Icon., f. 1377, . 83
27. Xestina bistrialis, Beck. Ibid., f. 483, . . . 83
28. Xestina Ceylonica, Pfr. Ibid., f. 1420, . . . 84
29. Xestina Ceylonica, Pfr. Küster, Conch. Cab., t. 127, f. 6, 84
30. Xestina Taprobanensis, Dohrn. Conch. Ind., t. 29, f. 2, 84
31. Xestina semipartita, Desh. Hist. Moll., t. 89, f. 5, . 84
32. Xestina Mouhoti, Pfr. Zool. Proc., 1860, t. 50, f. 5, . 85
33. Xestina gummata, Sowb. (= luteofasciata, Lea). Conch. Icon., f. 134, . . . . . 85
34. Xestina xanthotricha, Pfr. (= velutina, Sowb.). Conch. Icon., f. 132 *c*, . . . . . 85
35. Xestina Tagalensis, Dohrn. Novit. Conch., ii, t. 58, f. 14, . . . . . 85
36. Xestina xanthotricha, Reeve (= Mörchi). Conch. Icon., f. 132, *a*, . . . . . 85
37–39. Xestina Siamensis, Pfr. Novit. Conch., t. 21, f. 7–9, 86
40. Xestina setigera, Sowb. Conch. Icon., f. 135, . . 86

## Plate 17.

FIGURE. PAGE.
41–43. Xestina cæsia, Pfr. Novit. Conch., t. 45, f. 14–16, 86
44. Xestina Cyix, Benson. Conch, Ind., t. 29, f. 4. . . 85
45. Xestina Bataviana, Busch. Küster, Conch. Cab., t. 11, f. 2, . . . . . 86
46. Xestina Bataviana, Var. Conch. Icon., f. 463, . . 86
47. Hemiplecta Crossei, Pfr. Jour. de Conch., 3 ser., iv, t. 12, f. 6, . . . . . 43
48. Hemiplecta Weinkauffiana, Crosse. Ibid., t. 12, f. 7, . 43
49. Xestina albizonata, Dohrn. Conch. Ind., t. 52, f. 6, . 86
50. Xestina læta, Pfr. Conch. Icon., f. 1380, . . . 86
51. Hemiplecta Haughtoni, Benson. Novit. Conch., v, t. 142, f. 15, . . . . . 39
52. Hemiplecta semidecussata, Pfr. Conch. Icon., f. 567, 43
53. Xesta bella, Pfr. Conch. Icon., f. 1354, . . . 68
54, 55. Xesta rareguttata, Mousson, var. venusta, Martens, Preuss. Exped., t. 9, f. 5, 6, . . . . . 69
56. Xesta rareguttata, var. crebriguttata, Martens. Preuss. Exped., t. 9, f. 4, . . . . . 69
57. Xesta rareguttata, Mousson. Conch. Icon., f. 492, . 69

## Plate 18.

58, 59. Xesta rareguttata, Mousson. Moll. Java, t. 21, f. 3, 69
60. Xesta sparsa, Mousson (= rareguttata, var.). Jour. de Conch., 2 ser., ii, t. 6, f. 4, . . . . . 69
61. Xesta Stuartiæ, Sowb. Küster, Conch. Cab., t. 54, f. 10, 70
62. Xesta gypsacea, Pfr. Ibid., t. 135, f. 22, . . . 70
63. Xesta Juliana, Gray. Reeve, Conch. Icon., f. 373, *b*, . 70
64. Xesta Juliana, Gray. Küster, Conch. Cab., t. 33, f. 15, 70
65. Xesta ganoma, Pfr. Reeve, Conch. Icon., f. 1267, . 70
66. Xesta ganoma, Pfr. Conch. Ind., t. 111, f. 7, . . 70
67, 68. Xesta vitellus, Shuttl. Novit. Conch., iii, t. 88, f. 4, 7, . . . . . 69
69. Xesta Lennepiana, Pfr. Küster, Conch. Cab., t. 158, f. 31, . . . . . 71

## Plate 19.

70. Xesta nemorensis, Müller. Reeve, Conch. Icon., f. 474, 71
71. Xesta Broti, Bonnet. Guerin's Mag., t. 5, f, 1, *a*, 1864, 71
72. Xesta Bimaensis, Mousson. Moll. Java. t. 21, f. 1, . 71
73. Xesta ovivitellus, Reeve. Conch. Icon., f. 1425, . . 71
74. Xesta halata, Mousson. Ibid., f. 486, . . . . 71
75–77. Xesta trochus, Müll. Novit. Conch., t. 149, f. 2, 4, 6, . . . . . 71
78. Xesta sulphurea, Reeve (= trochus). Conch. Icon, f. 476, . . . . . 72

FIGURE. PAGE.
79. Xesta cidaris, Lam. Ibid., f. 464, . . . . 72
80. Xesta Moussoni, Pfr. Ibid., f. 479, . . . . 72
81. Xesta glutinosa, Metcalfe. Ibid., f. 1378, . . . 72
82. Xesta glutinosa, Metcalfe. Küster, Conch. Cab., t. 162, f. 4, . . . . . 72
83. Xesta capitanea, Pfr. Conch. Icon., f. 1279, . . 72
84. Xesta zosterophora, Pfr. Ibid., Icon., f. 1357, . . 74
85. Xesta luctuosa, Beck. Ibid., f. 1017, . . . . 74
86, 87. Xesta parcipila, Martens. Preuss. Exped., t. 9, f. 1, 75

## Plate 20.

88, 90. Xesta citrina, Linn., var. aurantia. Preuss. Exped., t. 7, f. 1, 3, . . . . . 72
89. Xesta citrina, typical. Ibid., t. 7, f. 5, . . . 73
91, 95. Xesta citrina, var. columellaris, Beck. Ibid., t. 7, f. 2, 6, . . . . . 73
92. Xesta citrina, var. tiara, Beck. Ibid., t. 7, f. 7, . . 73
93. Xesta citrina, var. prætexta, Martens. Ibid., t. 7, f. 9, 73
94. Xesta citrina, var. opaca, Martens. Ibid., t. 7, f, 10, . 73
96–98. Xesta aulica, Pfr. Reeve, Conch. Icon., f. 481, . 73
99, 100 Xesta aulica, Pfr. Martens, Preuss. Exped., t. 8, f. 2, 3, . . . . . 73

## Plate 21.

1, 2. Xesta fulvizona, Mousson. Novit. Conch., iv, t. 115, f 6, 7, . . . . . 74
3, 4. Xesta fulvizona, var. Mousson. Ibid., iv, t. 128, f. 3, 4, . . . . . 74
5. Xesta Wallacei, Pfr. Ibid., iv, t. 128, f. 5, . . . 75
6. Xesta spiralis, Guillou. Conch. Icon., f. 408, . . 75
7, 8. Xesta sulfurata, Martens. Preuss. Exped., t. 8, f. 1, 75
9, 10. Xesta Basilessa, Benson. Conch. Ind., t. 25, f. 2; t. 52, f. 4, . . . . . 75
11. Xesta Maderaspatana, Gray. Conch. Icon., f. 392. . 76
12. Xesta Maderaspatana, Gray. Küster, Conch. Cab., t. 31, f. 7, . . . . . 76
13. Xesta Chastelli, Fér. Conch. Icon., f. 1455 *b*, . . 76
14. Xesta albata, Blanford. Jour. As. Soc., Beng., xlix, t. 3, f. 3, . . . . . 83
15. Xesta monozonalis, Lam. Conch. Icon., f. 467, . . 76
16. Xesta obliquata, Reeve. Martens, Mittheil, t. 1, f. 1, 76

## Plate 22.

17. Xesta ignescens, Pfr. Novit. Conch., t. 45, f. 12, . 76
18. Xesta Crespignyi, Higgins. Zool. Proc., t. 14, f. 4, 1868, . . . . . 76

FIGURE. PAGE.

19. Xesta Godeffroyana, Garrett. Am. Jour. Conch., vii, t. 19, f. 9, . . . . . 77
20. Xesta Pfeifferi, Phil. Küster, Conch. Cab., t. 31, f. 9, 77
21. Xesta lurida, Gld. (= Pfeifferi). Moll. Wilkes Exped., t. 5, f. 68, . . . . . 77
22. Xesta Nouleti, Guillou. Conch. Icon., f. 405, . . 77
23. Xesta rubricata, Gould (= Nouleti). Moll. Wilkes Exped., t. 5, f. 66, . . . . . 77
24. Xesta Otareæ, Garrett (= Nouleti). Am. Jour. Conch., vii, t. 19, f. 8. . . . . 77
25. Xesta Hoyti, Garrett. Ibid., vii, t. 19, f. 6, . . 77
26. Rhysota fuscolutea, Grat. Act. Soc. Linn. Bord., xi, t. 1, f. 9, . . . . . 35
27. Xesta Grateloupi, Gray. Küster, Conch. Cab., t. 31, f. 13, . . . . . 77
28. Xesta tenella, Garrett. Am. Jour. Conch., vii, t. 19, f. 7, . . . . . 77
29. Xesta fragillima, Mousson. Jour. de Conch., t. 7, f. 3, 1870, . . . . . 78
30. Xesta vitellina, Pfr. Küster, Conch. Cab., t. 122, f. 22, 78
31. Xesta ligulata, Fér. Conch. Ind., t. 28, f. 9, . . 78
32, 33. Xesta rubellocincta, Blanford. Ibid., t. 51, f. 5, 6, 78
34. Xesta Comorensis, Morelet. Jour. de Conch., t. 9, f. 1, 1881, . . . . . 78
35. Xesta induta, Pfr. Conch. Icon., f. 1133, . . . 78
36. Xesta induta, Pfr. Küster, Conch. Cab., t. 164, f. 7, . 78
37. Xesta naninoides, Benson. Conch. Icon., f. 1158, . 79
38. Xesta Celebensis, Pfr. Jour. de Conch., 3 ser., ii, t. 10, f. 3, . . . . . 79
39. Xesta umbilicaria, Guillou. Küster, Conch. Cab., t. 11, f. 12, . . . . . 79
40. Xesta Desgrazii, Hombr. et Jacq. Voy. Astrol. et Zel., t. 5, f. 5, . . . . . 79

PLATE 23.

41. Xesta Javanica, Lam. Küster, Conch. Cab., t. 11, f. 14, . . . . . 80
42. Xesta Belangeri, Desh. Conch. Ind., t. 29, f. 6, . . 80
43. Xesta Belangeri, Reeve (= Bombayana, Grat.). Conch. Icon., f. 145, . . . . . 80
44. Xesta uter, Theobald. Conch. Ind., t. 58, f. 7, . . 80
45. Xesta solata, Benson. Conch. Icon., f. 741, . . 80
46. Hemiplecta Indica, Pfr. Conch. Ind., t. 55, f. 10, . 42
47. Euplecta Boholensis, Pfr. Reeve, Icon., f. 154 *b*, . 46
48. Euplecta Boholensis, Pfr. Küster, Conch. Cab., t. 30, f. 6, . . . . . 46

FIGURE. PAGE.
49. Euplecta Armida, Pfr. Reeve, Icon., f. 1032, . . 46
50. Euplecta biangulata, Pfr. Küster, Conch. Cab., t. 88, f. 6, . . . . . 46
51. Euplecta filocincta, Pfr. Küster, Conch. Cab., t. 88, f. 24, . . . . . 46
52, 53. Euplecta bicarinata, Semper. Reisen, Philipp., t. 2, f. 8, *a*, *b*, . . . . . 46
54–56. Euplecta orthostoma, Pfr. Küster, Conch. Cab., t. 83, f. 29, 30, . . . . . 47
57, 58. Rotularia Massoni, Behn. Novit. Conch., v, t. 142, f. 23, 24, . . . . . 47
59. Trochonanina Schmeltziana, Mousson. Jour. de Conch., t. 14, f. 4, 1869, . . . . . 47
60. Trochonanina exposita, Mousson. Jour. de Conch., t. 7, f. 2, 1873, . . . . . 47
61. Trochonanina Tais, Hombr. et Jacq. Reeve, Conch. Icon., f. 598 *b*, . . . . . 48
62. Trochonanina tropidophora, Ad. and Reeve. Voy. Samarang, t. 14, f. 14, . . . . . 48
63–65. Trochonanina insculpta, Pfr. Küster, Conch. Cab., t. 30, f. 15, 17, 18, . . . . . 48
66. Trochonanina conicoides, Metcalfe. Conch. Icon., f. 449, . . . . . 48
67, 68. Trochonanina Labuanensis, Pfr. (= conicoides, var.). Novit. Conch. iii, t. 74, f. 4, 5, . . . . . 48
69, 70. Trochonanina sylvana, Dohrn and Semper. Novit. Conch. ii, t. 58, f. 3, 4, . . . . . 49
71. Trochonanina calculosa, Gould. Moll. Wilkes Exped., f. 63 *a*, . . . . . 49
72–74. Trochonanina obconica, Pease. Jour. Phila. Acad., ix, f. 37, . . . . . 49
75. Trochonanina subrugosa, Garrett. Ibid., f. 38, . . 49
76. Trochonanina Tahitensis, Garrett. Ibid., f. 39, . . 49
77, 78. Trochonanina conula, Pease. Ibid., f. 36, . . 49

## Plate 24.

79. Trochonanina lychnia, Benson. Conch. Icon., f. 1161, 50
80. Martensia Mozambicensis, Pfr. Zool. Proc., t. 31, f. 9, 1855, . . . . . 50
81. Martensia pyramidea, Mart., var. leucograpta. Monatsb. Berl., t. 1, f. 6, 1878, . . . . . 50
82–84. Martensia pyramidea, Mart. Decken's Voy. iii, Pt. 1, t. 1, f. 3, . . . . . 50
85, 86. Martensia plicatula, Martens. Novit. Conch. iv, t. 118, f. 17, 18, . . . . . 50

FIGURE. PAGE.
87, 88. Martensia Jeningsi, Pfr. Küster, Conch. Cab., t. 129, f. 23, 24, . . . . . 50
89–91. Zingis radiolata, Martens. Monatsb. Berlin, t. 1, f. 8–10, 1878, . . . . . 51
92–94. Trochozonites percarinata, Martens. Monatsb. Berlin, t. 1, f. 16–18, 1876, . . . . . 51
95. Trochozonites Ibuensis, Martens. Monatsb. Berlin, t. 1, f. 15, 1876, . . . . . 51
96. Trochozonites Ibuensis. Conch. Icon., f. 1398, . . 51
97. Trochozonites tumidula, Martens. Monatsb. Berlin, t. 1, f. 12, 1876, . . . . . 51
98. Trochozonites Folini, Morelet. Ser. Conch. I, t. 1, f. 3, 51
99–1. Trochozonites Calabarica, Pfr. Novit. Conch. iii, t. 108, f. 10–12, . . . . . 51
2. Trochozonites talcosa, Gould. Novit. Conch. iii, t. 108, f. 9, . . . . . 52
3. Trochozonites Adansoniæ, Morelet. Ser. Conch. i, t. 1, f. 4, . . . . . 52
4, 5. Sitala infula, Benson. Shells of India, pt. 2, t. 8, f. 1, 52
6, 7. Sitala Attegia, Benson. Ibid., pt. 2, t. 8, f. 2, 3, . 52
8. Sitala culmen, Blanford. Ibid., pt. 2, t. 8, f. 4, . . 53
9. Sitala confinis, Blanford. Ibid., pt. 2, t. 10, f. 2, . . 53
10. Sitala Haroldi, Austen. Ibid., pt. 2, t. 10, f. 7, . . 53

## Plate 25.

11, 12. Sitala gromatica, Austen. Shells of India, pt. 2, t. 10, f. 5, 6, . . . . . 53
13. Sitala Phulongensis, Austen. Ibid., pt. 2, t. 10, f. 4, . 53
14. Sitala liricincta, Stoliczka. Jour. Asiat. Soc., xl, t. 18, f. 10 *a*, . . . . . 53
15. Sitala limata, Austen. Shells of India, pt. 2, t. 10, f. 9, 54
16. Sitala carinifera, Stoliczka. Jour. Asiat. Soc., xlii, t. 1, f. 8 *a*, . . . . . 54
17. Sitala palmaria, Benson. Conch. Ind., t. 30, f. 5, . 54
18. Sitala arx, Benson. Shells of India, pt. 2, t. 9, f. 8, . 54
19. Sitala Balliana, Nevill. Ibid., pt. 3, t. 15, f. 2, . . 54
20, 21. Sitala rimicola, Benson. Ibid., pt. 2, t. 9, f. 3, 4, . 55
22. Sitala circumfilaris, Morelet. Jour. de Conch., t. 12, f. 2, 1879, . . . . . 55
23. Sitala injussa, Blanford. Shells of India, pt., t. 9, f. 5, 55
24. Sitala febrilis, Blanford. Conch. Ind., t. 129, f. 4, . 55
25. Sitala tricarinata, Blanford. Shells of India, pt. 2, t 10, f. 10, . . . . . 55
26, 27. Sitala bilirata, Gredler (= Kuangsiensis, Tryon). Jahrb. xi, pt. 2, t. 3, f. 1, . . . . . 55

FIGURE. PAGE.

28. Sitala subbilirata, Austen. Shells of India, pt. 2, t. 10, f. 11, . . . . . 56
29. Sitala tertiana, Blanford. Ibid., pt. 2, t. 9, f. 9, . . 56
30. Sitala Srimani, Austen. Ibid., pt. 2, t. 9, f. 7, . . 56
31. Sitala uvida, Austen. Ibid., pt. 3, t. 13, f. 5, . . 56
32. Sitala placita, Austen. Ibid., pt. 3, t. 14, f. 3, . . 57
33. Sitala monomena, Benson. Ibid., pt. 2, t. 9, f. 6, . 57
34. Sitala gratulator, Blanford. Ibid., pt. 2, t. 10, f. 1, . 57

PLATE 26.

35. Sitala apicata, Blanford. Jour. Asiat. Soc., xxxix, t. 3, f. 13, . . . . . 57
36. Sitala cacuminifera, Benson. Conch. Ind., t. 54, f. 14, 57
37. Sitala concavospira, Pfr. Ibid., t. 86, f. 1, . . . 57
38. Sitala conulus, Blanford. Ibid., t. 129, f. 6, . . 58
39. Sitala Emiliana, Pfr. Küster, Conch. Cab., t. 158, f. 33, 58
40. Sitala hyphasma, Pfr. Conch. Ind., t. 54. f. 3, . . 58
41. Sitala subdecussata, Pfr. Ibid., t. 56, f. 4, . . . 58
42. Sitala falcata, Blanford. Ibid., t. 54, f. 10, . . 58
43. Sitala Cingalensis, Benson. Ibid., t. 54, f. 2, . . 58
44. Sitala Baconi, Benson. Ibid., t. 56, f. 7, . . . 59
45. Sitala Layardi, Pfr. Küster, Conch. Cab., t. 145, f. 3, 59
46. Sitala phyllophila, Benson. Conch. Ind., t. 61, f. 10, . 59
47. Sitala verrucula, Pfr. Conch. Icon., f. 1327, . . 59
48. Sitala leucophlœa, Martens. Preuss. Exped., t. 12, f. 14, 59
49. Sitala subnana, Nevill. Shells of India, Pt. 3, t. 14, f. 6, 60
50. Sitala crenicincta, Austen. Ibid., Pt. 3, t. 13, f. 2, . 60
51. Sitala intonsa, Austen. Ibid., Pt. 3, t. 13, f. 1, . . 60
52. Sitala recondita, Austen. Ibid , Pt. 3, t. 13, f. 4, . 60
53. Sitala trochulus, Moll. Jahrb. Mal. Gesell., x, t. 12, f. 4, 60
54. Sitala turrita, Moll. Ibid., x, t. 12, f. 3, . . . 60
55. Sitala Raffrayi, Bourg. Moll. Abyss., t. 7, f. 15, . 60
56. Sitala Steudneri, Jickeli (= membranacea). Acad. Nat. Cur., xxxvii, t. 4, f. 21, . . . . . 61
57. Kaliella Barrakporensis, Pfr. Shells of India, Pt. 1, t. 1, f. 1, . . . . . 61
58. Kaliella Barrakporensis, var. Sivalensis, Hutton. Ibid., Pt. 1, t. 2, f. 1, . . . . . 61
59. Kaliella Perakensis, Nevill. Ibid., Pt. 1, t. 2, f. 7, . 61
60. Kaliella Vulcani, Austen. Ibid., Pt. 1, t. 1, f. 13, . 62
61. Kaliella Sigurensis, Austen. Ibid., Pt. 1, t. 1, f. 11, . 62
62, 63. Kaliella Cherraensis, Austen. Ibid., Pt. 1, t. 1, f. 5, 6, . . . . . 62
64. Kaliella costulata, Austen. Ibid., Pt. 1, t. 2, f. 5, . 62
65. Kaliella subcostulata, Austen. Ibid., Pt. 1, t. 2, f. 6, . 62

## Plate 27.

FIGURE. PAGE.

66, 67. Kaliella Munipurensis, Austen. Shells of India, Pt. 1, t. 1, f. 9, 10, . . . . . 62
68. Kaliella aspirans, Blanf. Ibid , Pt. 1, t. 1, f. 12, . . 63
69. Kaliella Khasiaca, Austen. Ibid., Pt. 1, t. 1, f. 8, . 63
70. Kaliella fastigiata, Hutton. Ibid., Pt 1, t. 2, f. 8, . 63
71. Kaliella elongata, Austen. Ibid., Pt. 1, t. 2, f. 9, . 63
72. Kaliella Jaintiaca, Austen. Ibid., Pt. 1, t. 2, f. 4, . 63
73. Kaliella Nagaensis, Austin. Ibid., Pt. 1, t. 2, f. 11, . 63
74. Kaliella gratiosa, Austen. Ibid., Pt. 1, t. 2, f. 10, . 64
75. Kaliella Teriaensis, Austin. Ibid., Pt. 1, t. 2, f. 12, . 64
76. Kaliella nana, Hutton. Ibid., Pt. 2, t. 5, f. 6, . . 64
77. Kaliella resinula, Austin. Ibid., Pt. 2, t. 5, f. 8, . . 64
78. Kaliella Sikkimensis, Nevill. Ibid., Pt. 2, t. 5, f. 9, . 64
79. Kaliella bullula, Hutton. Ibid., Pt. 2, t. 5, f. 4, . . 64
80. Kaliella flatura, Austen. Ibid., Pt. 2, t. 5, f. 10, . . 64
81. Kaliella Lhotaensis, Austen. Shells of India, Pt. 2, t. 5, f. 2, . . . . . 65
82. Kaliella animula, Austen. Ibid., Pt. 2, t. 5, f. 1, . . 65
83. Kaliella Lailangkotensis, Austen. Ibid., Pt. 3, t. 15, f. 1, 65
84. Kaliella Kezamahensis, Austen. Ibid., Pt. 3, t. 15, f. 3, 65
85. Kaliella Burrailensis, Austen. Ibid., Pt. 3, t. 15, f. 5, 65
86. Kaliella ruga, Austen. Ibid., Pt. 3, t. 15, f. 4, . . 65
87. Kaliella Nevilli, Austen. Ibid., Pt. 3, t. 13, f. 6, . 66

## Plate 28.

88. Kaliella Leithiana, Austen. Shells of India, Pt. 3, t. 16, f. 6, . . . . . 66
89. Kaliella Dikrangensis, Austen. Ibid., Pt. 3, t. 16, f. 3, 66
90. Kaliella Nongsteinensis, Austen. Ibid., Pt. 3, t. 16, f. 2, 66
91. Kaliella Tirutana, Austen. Ibid., Pt. 3, t. 16, f. 4, . 66
92. Kaliella Chennellii, Austen. Ibid., Pt. 3, t. 16, f. 1, . 66
93. Kaliella depressa, Moll. Jahrb. Mal. Gesell., x, t. 12, f. 7, . . . . . 67
94. Kaliella sculpta, Moll. Ibid., xii, t. 10, f. 11, . . 67
95. Kaliella rupicola, Moll. Ibid., xii, t. 10, f. 12, *a*, . . 67
96. Kaliella Monticola, Moll. (= Raymondi, Tryon). Ibid., xii, t. 10, f. 12, *b*, . . . . . 67
97. Kaliella Franciscana, Gredler. Moll. Emp. Chin., t. 19, f. 10, . . . . . 67
98. Kaliella Gredleriana, Heude (= Franciscana, var.) Ibid. t. 19, f. 11, . . . . . 68
99. Kaliella imbellis, Heude. Ibid., t. 13, f. 16, . . 68
100. Kaliella Hongkongensis, Möll. Jahrb. Mal. Gesell., xii, t. 10, f. 13, . . . . . 68

FIGURE. PAGE.

1. Kaliella polygyra, Möll. Ibid., xii, t. 10. f. 14, . . 68
2. Orpiella scorpio, Gould. Moll. Wilkes Exped., f. 67, . 68
3. Rhysota Balstoni, Angas. Zool. Proc., t. 54, f. 5, 1877, 34
4, 5. Hemiplecta Cleamesi, Smith. Zool. Proc., t. 21, f. 8, 9, 1882, . . . . . 45
6. Rhysota Ekongensis, Angas. Zool. Proc., t. 54, f. 4, 1877, . . . . . 34
7, 8. Kaliella biciliata, Pfr. Conch. Indica, t. 159, f. 1, 4, . 67
9–11. Macrochlamys vesicula, Benson. Ibid., t. 63, f. 4–6, 87
12–14. Macrochlamys Lecythis, Benson (= vesicula, var.). Ibid., t. 63, f. 7–9, . . . . . 87
15–17. Macrochlamys Kumahensis, Theob. and Stolicz. Jour. As. Soc. Bengal, xli, t. 11, f. 9, . . . 88
18–20. Macrochlamys Turanica, Martens. Fedsch. Reisen Turk., t. 1, f. 3, . . . . . 88

## Plate 29.

21–23. Macrochlamys convoluta, Desh. Hist. des Moll., iv, t. 87, f. 2, . . . . . 88
24. Macrochlamys Cutteri, H. Adams. Zool. Proc., 1870, t. 48, f. 21, . . . . . 88
25–27. Macrochlamys subjecta, Benson. Küster, Conch. Cab., ii, t. 143, f. 9–11, . . . . . 88
28–30. Macrochlamys nuda, Pfr. Ibid., iii, t. 161, f. 16, 17, 88
31, 32. Macrochlamys glauca, Benson. Ibid., ii, t. 87, f. 1–3, . . . . . 88
33, 34. Macrochlamys aurea, Martens. Preuss. Exped., t. 12, f. 12, . . . . . 89
35, 36. Macrochlamys nepos, Pfr. Conch. Ind., t. 32, f. 2, 3, 89
37. Macrochlamys perpaula, Benson. Austen, Shells of India, pt. iii, t. 14, f. 5, . . . . . 89
38, 39. Macrochlamys consul, Pfr. Novit. Conch., iii, t. 74, f. 11, 12, . . . . . 89
40–42. Macrochlamys pumicata, Morelet. Ser. Conch., iv, t. 12, f. 2, . . . . . 89
43–45. Macrochlamys Boucourti, Morelet. Ser. Conch., iv, t. 12, f. 9, . . . . . 89
46–48. Macrochlamys cinnamomea, Val. Guerin's Mag., t. 116, f. 1, 1838, . . . . . 89
49–51. Macrochlamys hyalina, Mart. Preuss. Exped., t. 12, f. 5, . . . . . 90

## Plate 30.

52–54. Macrochlamys cycloidea, Albers. Mal. Blatt., iv, t. 1, f. 1–3, . . . . . 90

FIGURE. PAGE.
55, 56. Macrochlamys consepta, Benson. Conch. Ind., t. 88, f. 5, 6, . . . . . 90
57, 58. Macrochlamys Benoiti, Crosse and Fischer. Jour. de Conch., t. 14, f. 4, 1863, . . . . . 90
59, 60. Macrochlamys decussata, Benson. Küster, Conch. Cab., t. 141, f. 23, 24, . . . . . 90
61, 62. Macrochlamys Vitrinoides, Desh. Guerin's Mag., t. 26, 1831, . . . . . 90
63–65. Macrochlamys pseudovitrinoides, Nevill. Küster, Conch. Cab., t. 110, f. 10–12, . . . . . 90
66, 67. Macrochlamys petrosa, Hutton. Conch. Ind., t. 88, f. 7. 10, . . . . . 91
68, 69. Macrochlamys Jainiana, Austen. Shells of India, pt. 4, t. 26, f. 7, 8, . . . . . 91
70, 71. Macrochlamys platychlamys, Blanford. Jour. As. Soc. Bengal, xlix, t. 2, f. 9, . . . . . 91
72. Macrochlamys pedina, Benson. Conch. Ind., t. 51, f. 3, 91
73–75. Macrochlamys resplendens, Phil. Küster, Conch. Cab., t. 110, f. 7–9, . . . . . 91
76. Macrochlamys resplendens, var. obesior, Mart. Preuss. Exped., t. 12, f. 6, . . . . . 91
77, 78. Macrochlamys atricolor, Austen. Shells of India, pt. 4. t. 24, f. 1, 3, . . . . . 92

## Plate 31.

79. Macrochlamys atricolor, Austen. Shells of India, pt. 4, t. 24, f. 4, . . . . . 92
80. Macrochlamys acerra, Bens. (= Birmana, Pfr.). Conch. Ind., t. 51, f. 2, . . . . . 92
81, 82. Macrochlamys lubrica, Bens. Conch. Ind., t. 51, f. 8, 9, . . . . . 92
83, 84. Macrochlamys politissima, Pfr. Ibid., t. 31, f. 8, 9, 93
85, Macrochlamys Cacharica, var. glauca, Austen. Shells of India, pt. 4, t. 24, f. 6, . . . . . 92
86. Macrochlamys Cacharica, Austen. Shells of India, pt. 4, t. 27, f. 2, . . . . . 92
87, 88. Macrochlamys jucunda, Pfr. Novit. Conch., iii, t. 74, f. 13, 14, . . . . . 93
89–91. Macrochlamys fulvocarnea, Mart. Preuss. Exped., t. 12, f. 8, . . . . . 93
92–94. Macrochlamys Exul, Theobald. Conch. Ind., t. 62, f. 1–3, . . . . . 93
95. Macrochlamys Malaccana, Pfr. Conch. Icon., f. 1373, 93
96, 97. Macrochlamys convallata, Benson. Conch. Ind., t. 88, f. 2, 3, . . . . . 93

FIGURE. PAGE.

98, 99. Macrochlamys compluvialis, Blanford. Ibid., t. 88, f. 1, 4, . . . . . 93
100–2. Macrochlamys aglaja, Pfr. Preuss. Exped., t. 12, f. 13, . . . . . 94
3, 4. Macrochlamys vallicola, Pfr. Conch. Ind., t. 128, f. 8, 9, . . . . . 94
5, 6. Macrochlamys hypoleuca, Blanford. Ibid., t. 64, f. 6, 7, . . . . . 94
7–9. Macrochlamys Stephoides, Stolicz. Jour. As. Soc. Bengal, xlii, t. 1, f. 9, . . . . . 94
10, 11. Macrochlamys carneola, Pfr. Conch. Ind., t. 128, f. 2, 3, . . . . . 94

## Plate 32.

12–14. Macrochlamys Todarum, Blanford. Conch. Ind., t. 64, f. 4–5, . . . . . 94
15. Macrochlamys Perotteti, Pfr. Küster, Conch. Cab., t. 159, f. 44, . . . . . 94
16, 17. Macrochlamys Villipensa, Benson. Conch. Ind., t. 64, f. 4, 6, . . . . . 94
18. Macrochlamys infans, Pfr. Conch. Icon., f. 1417, . 95
19, 20. Macrochlamys planiuscula, Hutton. Conch. Ind., t. 32, f. 7, 10, . . . . . 95
21. Macrochlamys corylus, Reeve. Conch. Icon., f. 1439, 95
22. Macrochlamys ornatissima, Benson. Conch. Ind., t. 60, f. 4, . . . . . 95
23, 24. Macrochlamys vidua, Blanford. Ibid., t. 130, f. 2, 3, 95
25, 26. Macrochlamys partita, Pfr. Ibid., t. 85, f. 5, 6, . 95
27. Macrochlamys subopaca, Pfr. Reeve, Conch. Icon., f. 1302, . . . . . 96
28, 29. Macrochlamys subconoidea, Pfr. Conch. Ind., t. 85, f. 7, 10, . . . . . 96
30–32. Macrochlamys Patanæ, Benson. Ibid., t. 130, f. 5–7, 96
33. Macrochlamys choinix, Benson. Ibid., t. 51, f. 1, . 96
34, 35. Macrochlamys sequax, Benson. Ibid., t. 63, f. 1, 2, 96
36–38. Macrochlamys Hainesii, Pfr. Novit. Conch., i, t. 21, f. 1–3, . . . . . 96
39, 40. Macrochlamys regulata, Benson. Conch. Ind., t. 31, f. 5, 6, . . . . . 96
41, 42. Macrochlamys Woodiana, Pfr. Küster, Conch. Cab., t. 144, f. 7, 8, . . . . . 97
43–45. Macrochlamys mitiuscula, Mart. Preuss. Exped., t. 12, f. 10, . . . . . 97
46–48. Macrochlamys russeola, Morelet. Ser. Conch., i, t. 4, f. 3, . . . . . 97

REESE LIBRARY OF THE UNIVERSITY CALIFORNIA

FIGURE. PAGE.

49, 50. Macrochlamys ceromatica, Morelet. Jour. de Conch., 1881, t. 9, f. 2, . . . . . 97
51–53. Macrochlamys pansa, Benson. Novit. i, t. 36, f. 11–13, . . . . . 97

PLATE 33.

54–56. Macrochlamys nebulosa, Blanford. Conch. Ind., t. 64, f. 8–10, . . . . . 97
57. Macrochlamys tenuicula, H. Adams. Zool. Proc., t. 4, f. 9, 1868, . . . . . 97
58, 59. Macrochlamys tenuicula, H. Adams. Conch. Ind., t. 89, f. 7, 10, . . . . . 97
60. Macrochlamys oblita, Pfr. Reeve, Conch. Icon., f. 444, 98
61, 62. Macrochlamys plicatula, Blanford. Jour. As. Soc. Bengal, xxxix, t. 3, f. 7, . . . . . 98
63. Macrochlamys Indica, Pfr. Conch. Ind., t. 55, f. 10, . 98
64, 65. Macrochlamys Sikrigaliensis, Nevill. Ibid., t. 130, f. 8, 9, . . . . . 98
66–68. Macrochlamys longicauda, Austen. Shells of India, Pt. III, t. 17, f. 1, 4, 2, . . . . . 98
69. Macrochlamys Nengloensis, Austen. Ibid., t. 17, f. 3, 98
70. Macrochlamys Poongee, Theobald. Conch. Ind., t. 16, f. 9, . . . . . 98
71. Macrochlamys Koliaensis, Austen. Shells of India, Pt. III, t. 17, f. 6, . . . . . 98
72. Macrochlamys Roberti, Austen. Ibid., t. 17, f. 7, . 99
73. Macrochlamys Dorani, Austen. Ibid., t. 17, f. 8, . 99
74. Macrochlamys Tanirensis, Austen. Ibid., t. 17, f. 9, . 99
75. Macrochlamys rusticula, Austen. Ibid., t. 17, f. 10, . 99
76. Macrochlamys Darjilingensis, Austen. Ibid., t. 17, f. 11, 99
77. Macrochlamys umbraticola, Austen. Ibid., t. 14, f. 4, 99
78. Macrochlamys Kandiensis, Nevill. Ibid., t. 14, f. 2, . 99

PLATE 34.

79. Macrochlamys pacata, Austen. Shells of India, Pt. III, t. 14, f. 10, . . . . . 99
80. Macrochlamys faceta, Austen. Ibid., t. 14, f. 7, . . 100
81. Macrochlamys errata, Austen. Ibid, t. 14, f. 11, . 100
82. Macrochlamys originaria, Austen. Ibid., t. 14, f. 12, . 100
83. Macrochlamys sata, Austen. Ibid., t. 14, f. 13, . . 100
84. Macrochlamys Anonæ, Austen. Ibid., t. 14, f. 8, . 100
85. Macrochlamys Shengorensis, Austen. Ibid., Pt. IV, t. 22, f. 5, . . . . . 100
86–88. Macrochlamys Hardwickei, Austen. Ibid., Pt. IV, t. 23, f. 1, 3, 4, . . . . . 100

FIGURE. PAGE.

89. Macrochlamys Lhotaensis, Austen (= Marshalli, Tryon). Ibid., Pt. IV, t. 23, f. 5, . . . . 101
90. Macrochlamys opiparis, Austen. Ibid., Pt. IV, t. 23, f. 6, . . . . . 101
91. Macrochlamys Kala, Austen. Ibid., t. 40, f. 1, . . 101
92. Macrochlamys Koliaensis, Austen (= Godwini, Tryon). Ibid., t. 26, f. 5 *a*, . . . . . 101
93. Macrochlamys castaneolabiata, Austen. Ibid., t. 29, f. 1, 101
94. Macrochlamys Dalingensis, Austen. Ibid., t. 35, f. 1, 102
95, 96. Macrochlamys bilineata, Austen. Jour. As. Soc. Beng., t. 8, f. 8 *a*, . . . . . 102
97. Macrochlamys hebescens, Blanford. Conch. Ind., t. 149, f. 1, . . . . . 102
98. Macrochlamys prona, Nevill. Shells of India, Pt. IV, t. 22, f. 2, . . . . . 102
99, 100. Macrochlamys lixa, Blanford. Conch. Ind., t. 149, f. 5, 6. . . . . 102

## Plate 35.

1, 2. Macrochlamys Davidi, Desh. Nouv. Arch. Mus. Bull., ix, t. 2, f. 10, 11, . . . . . 103
3–5. Macrochlamys Sinensis, Heude. Hist. Nat. Emp. Chin., t. 13, f. 4, . . . . . 103
6, 7. Macrochlamys cincta, Moll. Jahrb. Mal. Gesell., 1883, t. 12, f. 1, . . . . . 103
8. Macrochlamys vesta, Pfr. Zool. Proc., t. 46, f. 9, 1865, 103
9, 10. Macrochlamys plicatilis, Desh. Nouv. Arch. Mus. Bull., ix, t. 2, f. 13, 15, . . . . . 103
11, 12. Macrochlamys Moupiniana, Desh. Ibid., ix, t. 2, f. 16, 17, . . . . . 103
13, 14. Macrochlamys discus, Möll. Jahrb. Mal. Gesell., t. 9, f. 8, 1885, . . . . . 104
15, 16. Macrochlamys Eastlakeana, Möll. Ibid.. t. 12, f. 2, 1883, . . . . . 104
17, 18. Macrochlamys Rathouisii, Heude. Hist. Nat. Emp. Chin., t. 20, f. 31, . . . . . 104
19–21. Macrochlamys Henrici, Semper. Reisen Philipp., t. 2, f. 5, . . . . . 104
22–24. Macrochlamys crebristriata, Semper. Ibid., t. 2, f. 6, . . . . . 104
25, 26. Macrochlamys molecula, Benson. Conch. Ind., t. 32, f. 8, 9, . . . . . 103
27, 28. Macrochlamys ceratodes, Pfr. Küster, Conch. Cab., t. 110, f. 16, 17, . . . . . 105
29–31. Macrochlamys Bislingensis, Semper. Reisen Philipp., t. 2, f. 12, . . . . . 105

FIGURE. PAGE.
32. Macrochlamys sarcodes, Reeves. Conch. Icon., f. 146, 105
33–35. Macrochlamys subfusca, Beck. Küster, Conch. Cab., t. 122, f. 16–18, . . . . . 105
36, 37. Macrochlamys excentrica, Pfr. Ibid., t. 88, f. 14, 16, 105
38. Macrochlamys cumulus, Pfr. Conch. Icon., f. 1368, . 105
39, 40. Macrochlamys marmorata, Cox. Austr. Land Shells, t. 5, f. 5, 6, . . . . . 105
41. Macrochlamys villaris, Pfr. Reeve, Conch. Icon., f. 1375, . . . . . 105
42. Macrochlamys Keppelli, Pfr. Ibid., f. 1305, . . 106
43–45. Macrochlamys virginia, Morelet. Ser. Conch., t. 4, f. 8, . . . . . 106
46–48. Macrochlamys nitella, Morelet. Ibid., t. 4, f. 9, . 106

## Plate 36.

49, 50. Macrochlamys Maillardi, Desh. Moll. Reunion, t. 10, f. 12, 13, . . . . . 106
51. Macrochlamys minima, H. Adams. Zool. Proc., t. 19, f. 2, 1867, . . . . . 106
52–54. Macrochlamys prætumida, Fér. Ser. Conch., t. 4, f. 10, . . . . . 106
55, 56. Macrochlamys Geoffreyi, H. Adams. Zool. Proc., t. 28, f. 5, 1868, . . . . . 106
57–59. Macrochlamys proletaria, Morelet. Ser. Conch., t. 4, f. 4, . . . . . 106
60. Macrochlamys Poweri, H. Adams. Zool. Proc., t. 28, f. 20, 1868, . . . . . 108
61. Macrochlamys perlucida, H. Adams. Zool. Proc , t. 19, f. 3, 1867, . . . . . 107
62, 63. Macroceras spectabilis, Pfr. Küster, Conch. Cab., t. 32, f. 3, 4, . . . . . 107
64, 65. Macroceras spectabilis, Pfr. Küster, Conch. Cab., t. 32, f. 5, 6, . . . . . 107
66. Macrochlamys mica, Morelet. Jour. de Conch., t. 12, f. 1, 1879, . . . . . 107
67. Bensonia labiata, Pfr. Conch. Indica, t. 27, f. 5, . 107
68. Bensonia monticola, Hutton. Ibid., t. 52, f. 3, . . 107
69–71. Bensonia Angelica, Pfr. Novit. Conch., i, t. 21, f. 4–6, 108
72, 73. Bensonia Jacquemonti, Martens. Novit. Conch., iv, t. 118, f. 6, 8, . . . . . 108
74, 75. Bensonia Wynnei, Blanford. Jour. As. Soc. Bengal, xlix, t. 3, f. 5, . . . . . 108
76. Bensonia orobia, Benson. Conch Ind., t. 28, f. 8, . 108
77. Bensonia convexa, Reeve. Conch. Icon., f. 762, . . 108
78. Bensonia tugurium, Benson. Conch. Icon., f. 1155, . 109

FIGURE. PAGE.
79, 80. Bensonia splendens, Hutton. Conch. Ind., t. 51, f. 7, 10, . . . . . 109
81, 82. Bensonia petasus, Benson. Ibid., t. 89, f. 8, 9, . 109
83, 85. Bensonia Aspides, Benson. Ibid., t. 62, f. 7–9, . 109

## Plate 37.

86, 87. Sophina calias, Benson. Conch Ind., t. 147, f. 2, 3, 109
88. Sophina discoidalis, Stol. (= Calias, var.). Ibid., t. 147, f. 7, . . . . . 109
89, 90. Sophina Schizostelis, Bens. (= calias, var.). Ibid., t. 147, f. 5, 6, . . . . . 110
91, 92. Sophina forabilis, Benson. Ibid., t. 147, f. 1, 4, . 110
93, 94. Sophina conjungens, Stolicz. Ibid., t. 147, f. 8, 9, 110
95. Durgella honesta, Gould. Ibid., t. 90, f. 10, . . 111
96–98. Eurypus casca, Gould. Moll. Wilkes Expl. Exped., f. 69, . . . . . 110
99. Eurypus similis, Semper. Reisen Philipp., t. 2, f. 4, . 110
100–2. Eurypus nitidissima, Smith (= Treasuryensis, Tryon). Zool. Proc., t. 36, f. 1, 1885, . . . . . 111
3–5. Eurypus solidiuscula, Smith. Ibid., t. 36, f. 2, 1885, 111
6, 7. Durgella Khasiaca, Austen. Shells of India, Pt. iv, t. 39, f. 7, . . . . . 111
8, 9. Durgella levicula, Benson. Conch. Ind., t. 90, f. 1, 4, 111
10–12. Durgella honesta, Gould, var. Andersoniana, Nevill. Jour. As. Soc. Bengal, xl, t. 17, f. 7–9, . . . 112
13, 14. Durgella Shisha, Austen. Ibid., xliv, t. 1, f. 3, . 112
15–17. Microcystis glaberima, Semper. Semper Reisen, t. 2, f. 10, . . . . . 112
18–20. Microcystis electrina, Jacq. Voy. Astr. et Zel., t. 6, f. 37–39, . . . . . 112
21. Microcystis Jacksoniensis, Gray. Conch. Icon., f. 1462, 113
22–25. Microcystis ornatella, Pfr. (= Adamsi, Pfr.). Küster, Conch. Cab., t. 29, f. 23–26, . . . . . 112
26. Microcystis Marquesana, Pease. Am. Jour. Conch., iv, t. 12, f. 2, . . . . . 113
27. Microcystis perpolita, Mousson. Jour. de Conch., t. 14, f. 1, 1869, . . . . . 113

## Plate 38.

28–30. Microcystis verticillata, Pease. Jour. Philad. Acad., ix, t. 2, f. 31, . . . . . 113
31. Microcystis orbis, Beck. Conch. Icon., f. 623, . . 114
32–34. Mycrocystis callifera, Pfr. Conch. Cab., t. 27, f. 14–16, . . . . . 114

FIGURE. PAGE.
35, 36. Microcystis Vavauensis, Baird (=margarita). Voy. Curacoa, t. 40, f. 10, 11, . . . . . 114
37–39. Microcystis margarita, Jacq. Astr. et Zel., t. 11, f. 5–7, . . . . . 114
40–42. Microcystis exæquata, Gld. Moll. Wilkes' Expl. Exped., t. 5, f. 61, . . . . . 114
43–45. Microcystis Lowi, Issel. Ann. Genoa, vi, t. 5, f. 16, 17, 19, . . . . . 114
46. Microcystis nemotophora, Pfr. Conch. Icon., f. 1333, 114
47, 47 *a*, 48. Microcystis misella, Fér. Conch. Cab., t. 29, f. 14, 16, . . . . . 115
49. Microcystis subtilis, Anton. Conch. Icon., f. 626, . 113
50. Microcystis brunnea, Anton. Ibid., f. 628, . . . 113
51, 52. Microcystis radians, Pfr. Conch. Cab., t. 144, f. 22, 23, . . . . . 115
53–55. Microcystis simillima, Garrett. Jour. Philad. Acad. ix, t. 2, f. 32, . . . . . 115
56–58. Microcystis scalpta, Garrett (= Tahaensis, Tryon). Ibid., ix, t. 2, f. 30, . . . . . 115
59–61. Microcystis ornatella, Beck. Conch. Cab., t. 129, f. 7–9, . . . . . 115
62–64. Microcystis venosa, Pease. Am. Jour. Conch., ii, t. 21, f. 2, . . . . . 116
65–67. Microcystis pertenuis, Gould. Moll. Wilkes' Expl. Exped., f. 60, . . . . . 116
68–70. Microcystis cryptoportica, Gould. Ibid., f. 72, . 116
71–73. Microcystis cicercula, Gould. Ibid., f. 73, . . 116
74–76. Microcystis Chamissoi, Pfr. Specimen, . . 116
77–79. Microcystis frivola, Pease. Amer. Jour. Conch., ii, t. 21, f. 3, . . . . . 116

## Plate 39.

80–82. Microcystis normalis, Pease. Jour. Phila. Acad., ix, t. 2, f. 33, . . . . . 116
83–85. Microcystis angustivoluta, Garrett. Ibid., ix, t. 2, f. 34, . . . . . 117
86–88. Microcystis clausa, Heude. Hist. Nat. Emp. Chinois, t. 13, f. 8, . . . . . 117
89–90. Microcystis Samoensis, Baird (=Upolensis, Mouss.). Voy. Curaçoa, t. 40, f. 12, 13, . . . . . 119
91. Microcystis Alleryana, Crosse. Jour. de Conch., t. 3, f. 5, 1874, . . . . . 119
92–94. Microcystis subtillissima, Gould. Moll. Wilkes Exped., t. 5, f. 62, . . . . . 117
95–97. Microcystis gemma, Pfr. Conch. Cab., t. 122, f. 19–21, 117

FIGURE. PAGE.

98–100. Microcystis lactea, Semper. Reisen Philipp., t. 2, f, 9, . . . . . 118
1–3. Microcystis tersa, Issel. Ann. Mus. Genoa, vi, t. 5, f. 1, 2, 4, . . . . . 117
4. Microcystis lucidella, Pfr. Conch. Icon., f. 164, . . 119
5. Microcystis Thwaitesii, Pfr. Ibid., f. 1336, . . 118
6. Microcystis margaritacea, Semper. Reisen Philipp., t. 2, f. 15, . . . . . 118
7. Microcystis umbrina, Pfr. Conch. Icon., f. 1335, . 118
8–10. Microcystis perlucida, Issel. Ann. Mus. Genoa, vi, t. 5, f. 20, 22, 23, . . . . . 117
11–13. Microcystis Macdougalli, Issel. Ibid., vi, t. 5, f. 9, 11, 12, . . . . . 117
14, 15. Microcystis Hodgsoni, Blanford. Conch. Ind., t. 31, f. 2, 3, . . . . . 119
16–18. Microcystis Wilsoni, Semper. Reisen Philipp., t. 2, f. 11, . . . . . 118
19–21. Microcystis Vestii, Jickeli. Acad. Leop. Nat. Cur., xxxvii, t. 4, f. 16, . . . . . 118
22–24. Microcystis Stephus, Benson. Conch. Ind., t. 62, f. 4–6, . . . . . 118
25–27. Microcystis succinea, Pfr. Conch. Cab., t. 87, f. 6–8, 118

## Plate 40.

28–30. Microcystis minutula, Crosse. Jour. de Conch., t. 2, f. 2, 1874, . . . . . 119
31, 32. Microcystis Bourguignatiana, Mabille and Le Mesle. Ibid., t. 7, f. 6, 1866, . . . . . 120
33–35. Microcystis Abyssinica, Jickeli. Acad. Leop. Nat. Cur., xxxvii, t. 4, f. 15, . . . . . 119
36. Microcystis Schmackeriana, Möll. Jahrb. Mal. Gesell., xii, t. 10, f. 10, . . . . . 120
37. Microcystis Palaensis, Semper. Reisen Philipp., t. 2, f. 16, . . . . . 120
38–40. Microcystis pauxillula, Benson. Conch. Ind., t. 90, f. 7–9, . . . . . 120
41, 42. Microcystis vitrinina, Liardet. Zool. Proc., t. 5, f. 2, 1876, . . . . . 121
43–45. Microcystis Zikaveiensis, Heude. Hist. Nat. Emp. Chinois., t. 13, f. 9, . . . . . 120
46–48. Microcystis Vitiensis, Mousson. Specimen, . . 120
49–51. Microcystis Townsendiana, Austen and Nevill. Zool. Proc., t. 59, f. 1, 1879, . . . . . 120
52. Microcystis Ramsayi, Liardet. Zool. Proc., t. 5, f. 3, 1876, . . . . . 121

FIGURE. PAGE.
53–54. Microcystis myops, Dohrn and Semper. Novit. Conch., ii, t. 58, f. 7, 8, . . . . . 121
55–57. Microcystis planula, Heude. Hist. Nat. Emp. Chinois., t. 13, f. 6, . . . . . 120
58. Microcystis glabberrima, Moll. (= Minensis, Moll.). Jahrb. Mal. Gesell., x, t. 12, f. 7, . . . . 121
59–61. Microcystis Mooreana, Garrett. Jour. Philad. Acad., ix, t. 2, f. 28, . . . . . 119
62–64. Microcystis microgyra, Heude. Hist. Nat. Emp. Chenois., t. 13, f. 10, . . . . . 122
65–67. Microcystis palmicola, Stolicz. Jour. As. Soc. Beng., xlii, t. 1, f. 10, . . . . . 122
68–70. Microcystis Sonamargensis, Nevill. Moll. Yarkand Exped., f. 16–18, . . . . . 121
71, 72. Microcystis stenomphala, Möll. Jahrb. Mal. Gesell., xii, t. 10, f. 9, . . . . . 121
73–75. Microcystis Colombellaria, Heude. Hist. Nat. Emp. Chinois, t. 13, f. 12, . . . . . 122
76, 77. Microcystis Ramburiana, Mabille and Le Mesle. Jour. de Conch., t. 7, f. 7, 1866, . . . . 121

PLATE 41.

41–43. Microcystis Sekingeriana, Heude. Hist. Nat. Emp. Chinois, t. 13, f. 11, . . . . . 122
44. Microcystis rejecta, Pfr. Zool. Proc., t. 43, f. 1, 1859, 123
45–47. Microcystis Discordice, Garrett. Jour. Phila. Acad., ix, t. 2, f. 35, . . . . . 122
48–50. Microcystina cultrata, Gould. Moll. Wilkes. Exped., f. 59, . . . . . 125
51–53. Microcystis pauxillus, Gould. Ibid., f. 46, . . 123
54, 55. Microcystina Taviunensis, Liardet. Zool. Proc., t. 5, f. 1, 1876, . . . . . 125
56–58. Microcystis Mollendorffii, Rein. Jahrb. Mal. Gesell., iv, t. 10, f. 2, . . . . . 123
59, 60. Microcystis castaneola, Heude. Hist. Nat. Emp. Chinois, t. 13, f. 15, . . . . . 122
61. Microcystina Kivaensis, Garrett. Proc. Philad. Acad., t. 3, f. 71, 1873, . . . . . 124
62. Microcystina firmostyla, Mousson. Jour. de Conch., t. 14, f. 7, 1865, . . . . . 125
63–65. Microcystis rejecta, Pfr. Jahrb. Mal. Gesell., iv, t. 10, f. 1, . . . . . 123
66–68. Microcystis mamillaris, Heude (= rejecta). Hist. Nat. Emp. Chinois, t. 19, f. 8, . . . . . 123
69–71. Microcystis spelæa, Heude. Ibid., t. 13, f. 14, . 122
72–74. Microcystis planata, Heude. Ibid., t. 19, f. 9, . 123

FIGURE. PAGE.

75. Microcystina Mörchiana, Austen. Shells of India, Pt. 1, t. 3, f. 9, . . . . . 125
76–78. Microcystis bambusicola, Heude. Hist. Nat. Emp. Chinois, t. 13, f. 13, . . . . . 122
79–81. Microcystis euryomphala, Bourg. Moll. Abyss., f. 18–20, . . . . . 123
82. Microcystina Rinckii, Mörch. Austen, Shells of India, Pt. 1, t. 3, f. 1, . . . . . 124
83, 84. Microcystis perforata, Desh. Nouv. Arch. Mus. Bull., ix, t. 3, f. 30, 31, . . . . . 123
85. Microcystina Futunaensis, Mousson. Jour. de Conch., t. 3, f. 1, 1871, . . . . . 125
86. Microcystina excrescens, Mousson. Ibid., t. 7, f. 5, 1870, 124
87. Microcystina nodulata, Mousson. Ibid., t. 7, f. 4, 1870, 124

## Plate 42.

88. Microcystina cryptomphalus, Nevill. Austen, Shells of India, Pt. 1, t. 3, f. 10, . . . . . 126
89. Microcystina Warnefordi, Nevill. Ibid., Pt. 1, t. 3, f. 8, . . . . . 125
90. Thapsia troglodytes, Martens (= Buchholzi, Bourg.). Monatsb. Berlin, t. 1, f. 9, 1876, . . . . 128
91–93. Thapsia egenula, Morelet. Conch. Cab., t. 128, f. 34–36, . . . . . 127
94–96. Thapsia chrysosticta, Morelet. Voy. Welwitsch., t. 1, f. 5, . . . . . 127
97–99. Thapsia indecorata, Gould. Jour. de Conch., t. 2, f. 6, 1885, . . . . . 126
100, 1. Thapsia oleosa, Pfr. Küster, Conch. Cab., t. 135, f. 14, 15, . . . . . 127
2, 3. Thapsia Thomensis, Dohrn. Mal. Blätt., xiii, t. 5, f. 8, 9, . . . . . 127
4, 5. Thapsia aglypta, Dohrn. Ibid., xiii, t. 5, f. 5, 6, . 127
6, 7. Thapsia columellaris, Pfr. Küster, Conch. Cab., t. 148, f. 8, 10, . . . . . 127
8, 9. Thapsia calamechroa, Jonas. Ibid., t. 129, f. 11, 12, 127
10. Thapsia Bigoti, Crosse. Jour. de Conch., t. 12, f. 4, 1867, 128
11. Microcystina Sinica, Möll. Jahrb. Mal. Gesell., xii, t. 10, f. 15, . . . . . 126
12. Microcystina Harrietensis, Nevill. Austen, Shells of India, Pt. 1, t. 3, f. 11, . . . . . 126
13. Sagdinella Didrichsoni, Mörch. Ibid., Pt. 2, t. 9, f. 1, 126
14. Thapsia pellucida, Gould. Conch. Icon., f. 1401, . 128
15–17. Thapsia Nyassana, Smith. Zool. Proc., t. 32, f. 2, 1881, . . . . . 128

FIGURE. PAGE.
18–20. Thapsia troglodytes, Morelet. Jour. de Conch., vi, t. 1, f. 14–16, . . . . . 128
21, 22. Oxytes oxytes, Benson. Conch. Cab., t. 141, f. 1, 2, 129

## Plate 43.

23. Oxytes cycloplax, Benson. Conch. Ind., t. 26, f. 7, . 129
24, 25. Oxytes Pollux, Theob. (= Castor). Ibid., t. 26, f. 5, 2, . . . . . 129
26. Oxytes Castor, Theob. Ibid., t. 26, f. 3 . . . 129
27–29. Oxytes Blanfordi, Theob. Conch. Ind., t. 60, f. 1–3, 129
30. Oxytes ochthoplax, Benson. Ibid., t. 26, f. 4, . . 129
31, 32. Sessara helicifera, Blanf. Ibid., t. 50, f. 3, 4, . . 132
33. Oxytes Koondaensis, Blanford. Ibid., t. 56, f. 6, . 130
34. Oxytes Cherraensis, Blanf. (= Castor, Theob.). Ibid., t. 26, f. 6, . . . . . 129
35. Oxites Eucharis, Reeve (= subtecta, Pfr.). Conch. Icon., f. 129, . . . . . 130
36–38. Oxytes Eucharis, Desh. Fér., Hist. Moll., t. 64 *A*, f. 7, . . . . . 130
39–41. Sessara infrendens, Gould. Conch. Cab., t. 99, f. 1–3, . . . . . 132
42. Oxytes Shiplayi, Pfr. Conch. Ind., t. 131, f. 7, . . 130
43. Oxytes camura, Benson. Ibid., t. 55, f. 2, . . . 130
44. Sessara pylaica, Benson. Conch. Ind., t. 15, f. 2, . 132
45. Sessara Basseinensis, Blanford. Ibid., 30, f. 7, . . 131
46. Oxytes Linnæana, Pfr. Conch. Icon., f. 226, . . 131
47, 48. Sessara mamillaris, Blanf. Conch. Ind , t. 50, f. 1, 2, 131

## Plate 44.

49, 50. Oxytes Pallasiana, Pfr. Conch. Cab., t. 127, f. 8, 9, 131
51. Sessara Jickelli, Theob. (= infrendens, var.). Conch. Ind., t. 15, f. 3, . . . . . 132
52, 53. Sessara Vintoni, Desh. (= setiliris, Benson). Moll. Ile Reunion, t. 10, f. 20, 21, . . . . . 133
54, 55. Sessara Ataranensis, Theob. Conch. Ind., t. 84, f. 5, 6, . . . . . 132
56, 57. Sessara inermis, Theob. Jour. As. Soc. Beng., xlv, t. 14, f. 2, . . . . . 133
58–60. Sessara capessens, Benson. Novit. Conch., i, t. 36, f. 17–19, . . . . . 132
61, 62. Sessara Annamitica, Crosse et Fischer. Jour. de Conch., t. 14, f. 3, 1863, . . . . . 133
63, 64. Sessara Hungerfordiana, Theob. Jour. As. Soc. Beng., xlv, t. 14, f. 1, . . . . . 133

FIGURE. PAGE.

65. Oxytes Feneriffensis, H. Ad. (= eucharis, Desh.). Zool. Proc., 1876, t. 47, f. 8, . . . . . 130
66. Zonites Algirus, Linn. Rossmassler, i, t. 11, f. 147, . 134
67. Zonites verticillus, Fér. Ibid., Iconog., i, t. 11, f. 149, 134
68. Zonites verticillus, var. Græca, Kobelt. Ibid., iv, t. 110, f. 1101, . . . . . 134
69, 70. Zonites verticillus, var. Eubœica, Kobelt. Ibid., vii, f. 1810, . . . . . 134
71. Zonites Albanica, Ziegler. Ibid., i, t. 11, f. 148, . . 134
72. Zonites Albanica, var. Græca, Kobelt. Ibid., iv, t. 110, f. 1102, . . . . . 134
73. Zonites compressus, Ziegler. Ibid., i, t. 11, f. 150, . 135
74. Zonites compressus, var. Italica, Kobelt. Ibid., iv, t. 111, f. 1107, . . . . . 135
75, 76. Zonites acies, Partsch. Ibid., i, t. 11, f. 152, . . 135

## Plate 45.

77, 78. Zonites crypta, Parreyss. Rossmassler, Iconog., iv, t. 111, f. 1106, . . . . . 135
79. Zonites cultellatus, Thomson (= Z. Albanica, Ziegler). Binney, Terr. Moll., iv, t. 76, f. 6, . . . . 135
80–82. Zonites caricus, Roth. Rossmassler, Iconog., iii, t. 82, f. 899, . . . . . 135
83. Zonites chloroticus, Pfr. Ibid., iv, t. 110, f. 1100, . 136
84, 85. Zonites Smyrnensis, Roth. Ibid., iii, t. 82, f. 900, 136
86. Zonites corax, Parreyss. Ibid., iv, t. 110, f. 1103, . 136
87, 88. Zonites Croaticus, Partsch. Ibid., i, t. 11, f. 151, . 136
89. Zonites Croaticus, var. Ibid., iv, t. 111, f. 1104, . . 136
90, 91. Zonites pergranulatus, Godet. Rossmassler, Icon., vii, t. 179, f. 1809, . . . . . 136
92, 93. Zonites Carniolicus, Schmidt. Ibid., iv, t. 111, f. 1105, . . . . . 136
94–96. Zonites Gemonensis, Fér. Ibid., i, t. 11, f. 153, . 137
97–99. Zonites Catoleius, Bourg. Guerin's Mag. Zool., t. 15, f. 1–3, 1870, . . . . . 137
100, 1, 2. Zonites inopinatus, Desh. Nouv. Archives Mus. Bull., ix, t. 2, f. 3–5, . . . . . 137

## Plate 46.

3–5. Hyalina crystallina, Muller. Bourguignat, Amenites, t. 20, f. 19, 21, 24, . . . . . 138
6–8. Hyalina crystallina, var. subterranea, Bourg. Ibid., t. 20, f. 13, 15, 18, . . . . . 138
9, 11. Hyalina Botteri, Parreyss. Rossmassler, Iconog., N. S., i, t. 4, f. 36, . . . . . 139

FIGURE PAGE.
12–14. Hyalina pygmæa, Böttger. Ibid., t. 1, f. 13, . . 139
15, 16. Hyalina contracta, Westerlund. Ibid., t. 4, f. 37, 139
17–19. Hyalina Dubreuili, Clessin. Ibid., t. 4, f. 38, . . 139
20, 21. Hyalina Etrusca, Paulucci. Ibid., t. 4, f. 43, . 139
22, 23. Hyalina eustilba, Bourg. Ibid., t. 3, f. 22, . . 140
24–26. Jickelii, Clessin. Mal. Blatt.. xxiv, t. 2, f. 7, . . 140
27, 28. Hyalina litoralis, Clessin. Rossmassler, Iconog., N. S., i, t. 3, f. 28, . . . . . 140
29–31. Hyalina Narbonnensis, Clessin. Mal. Blatt., xxiv, t. 1, f. 6, . . . . . 140
32–84. Hyalina subcarinata, Clessin. Ibid., t. 1, f. 5, . 140
35–37. Hyalina subrimata, Reinh. Rossmassler, Iconog., N. S., i, t. 3, f. 25, . . . . . 140
38–40. Hyalina angystropha, Böttger. Ibid., t. 3, f. 29, . 141
41. Hyalina apalista, Bourg. Ibid., t. 3, f. 26, . . . 141
42, 43. Hyalina contortula, Kryn. Ibid., t. 4, f. 41, . . 141
44–46. Hyalina, Fér. (= diaphana). Ibid., 1 ser., ii, f. 530, 141
47, 48. Hyalina diaphana, var. Reitteri, Böttger. Ibid., N. S., i, t. 4, f. 39, . . . . . 142
49, 50. Hyalina petricola, Paulucci. Bull. Soc. Mal. Ital., viii, t. 2, f. 6, . . . . . 142

## Plate 47.

51–53. Hyalina diaphana, Studer. Mal. Blatt., xxiv, t. 2, f. 10, . . . . . 141
54, 55. Hyalina Erjaveci, Brusina. Rossmassler, Iconog., N. S., i, t. 3, f. 30, . . . . . 142
56–58. Hyalina Hilgendorffi, Reinh. Jahrb. Mal. Gesell., iv, t. 9, f. 7, . . . . . 142
59–61. Hyalina microdiscus, Reinh. Ibid., iv, t. 9, f. 8, . 142
62–64. Hyalina Transylvanica, Clessin. Rossmassler, Icon., N. S., i, t. 3, f. 7, . . . . . 143
65–67. Hyalina eudedalæa, Bourg. Ibid., vii, f. 1946, . 143
68, 69. Hyalina subeffusa, Böttger. Rossmassler, Iconog., vii, f. 1944, . . . . . 143
70. Hyalina subeffusa, var. depressa. Jahrb. Mal. Gesell., viii, t. 8, f. 10, . . . . . 143
71–73. Hyalina hyblensis, Parreyss. Rossmassler, Icon., N. S., i, t. 4, f. 40, . . . . . 143
74, 75. Hyalina hydatina, Rossm. Ibid., ii, f. 529, . . 144
76–78. Hyalina latebricola, Bourg. Ibid , vii, t. 191, f. 1945, 144
79–80. Hyalina pseudohydatina, Bourg. Dupuy, Moll. France, t. 11, f. 5, . . . . . 144
81, 82. Hyalina Targioniana, Paulucci. Bull. Soc. Mal. Ital., viii, t. 2, f. 7, . . . . . 144

FIGURE. PAGE.

83–85. Hyalina Cavannæ, Paulucci. Rossmassler, Iconog., N. S., i, t. 4, f. 42, . . . . . 144
86, 87. Hyalina vermiculum, Lowe. Novit. Conch., iv, t. 119, f. 26, 27, . . . . . 144
88–90. Hyalina Lawleyana, Bourg. Moll. Litig., i, t. 8, f. 11, 13, 14, . . . . . 145
91, 92. Hyalina alliaria, Miller. Forbes and Hanley, Brit. Moll., t. 120, f. 5, 6, . . . . . 145
93. Hyalina remota, Benson (= alliaria). Reeve, Conch. Icon., f. 1168, . . . . . 145
94–96. Hyalina Komarowi, Böttger. Rossmassler, Iconog., N. S., i, t. 1, f. 9, . . . . . 145
97–99. Hyalina Alicurensis, Benoit. Ibid., vi, f. 1621, . 145
100–2. Hyalina glabra, Studer. Ibid., ii, f. 528, . . . 146

## Plate 48.

3, 4. Hyalina depressa, Sterki. Rossmassler, Iconog., N. S., i, t. 4, f. 35, . . . . . 146
5–7. Hyalina subglabra, Bourg. Mal. Bretagne, t. 1, f. 14–16, . . . . . 146
8, 9. Hyalina Mentonica, Nevill. Zool. Proc., t. 13, f. 3, 1880, . . . . . 146
10–12. Hyalina Rigiaca, Bourg. Mal. Lac Quatre Cantons, t. 1, f. 1–5, . . . . . 147
13–15. Hyalina diaphanella, Kryn. Mal. Blatt., N. S., vi, t. 2, f. 3 *b*, . . . . . 147
16–18. Hyalina Testæ, Phil. Rossmassler, Iconog., iii, t. 82, f. 903, . . . . . 147
19–21. Hyalina Pazi, Bourg. Moll. Litig., ii, t. 33, f. 1–3, 147
22–24. Hyalina Balmei, Shuttlew. Notitiæ Conch., Pt. 2, t. 2, f. 3, . . . . . 147
25–27. Hyalina oppressa, Shuttlew. Ibid., t. 2, f. 4, . 148
28–30. Hyalina Libysonis, Paulucci. Bull. Soc. Mal. Ital., viii, t. 1, f. 4, . . . . . 148
31–33. Hyalina albinella, Paulucci. Ibid., t. 1, f. 1. . . 148
34–36. Hyalina Nevilliana, Paulucci. Ibid., t. 1, f. 3, . 148
37–40. Hyalina Draparnaldi, Beck (=lucida, Drap.). Rossmassler, Iconog., vi, f. 1607, 1608, . . . . 149
41. Hyalina elata (= lucida, var.). Mal. Blatt. n. s., iv, t. 1, f. 1 *b*, . . . . . 149
42, 43. Hyalina lucida, var. Syriaca, Kobelt. Rossmassler, Iconog., vi, f. 1585, . . . . . 149
44, 45. Hyalina Lederi, Böttger. Ibid., n. s., i, t. 1, f. 12, 150
46–48. Hyalina septentrionalis, Bourg. Ibid., vi, f. 1611, . 149
49, 50. Hyalina Farinesiana, Bourg. Ibid., vi, f. 1610, . 149
51–53. Hyalina Blauneri, Shuttl. Ibid., vi, f. 1609, . . 149
54–56. Hyalina Calabrica, Paulucci. Moll. Calabria, t. 1, f. 2, 150

## Plate 49.

FIGURE. PAGE.

57–59. Hyalina Navarrica, Bourg. Rossmassler, Iconog., vi, f. 1623, . . . . . 150
60–62. Hyalina nitens, Mich. Ibid., ii, f. 524, . . . 150
63–65. Hyalina nitens, var. hiulca, Jan. Ibid., vi, f. 1591, 150
66–68. Hyalina deila, Bourg. Ibid., vii, f. 1947, . . 151
69–71. Hyalina Krynickii, Clessin (= deila). Mal. Blatt., n. s., vi, t. 3, f. 4, . . . . . 151
72–74. Hyalina margaritacea, Schmidt. Rossmassler, Iconog., vi, f. 1620, . . . . . 151
75–77, Hyalina scotophila, Stefani. Bull. Soc. Mal. Ital., vii, t. 1, f. 5, . . . . . 151
78–80. Hyalina ercica, Benoit. Rossmassler, Iconog., vi, f. 1617, . . . . . 151
81–83. Hyalina planella, Pfr. Ibid., f. 1618, . . . 151
84–86. Hyalina nitidula, Drap. Ibid., ii, f. 526, . . 152
87–89. Hyalina simplicula, Morelet. Küster, Conch. Cab. ii, t. 128, f. 31, 33, . . . . . 152
90–92. Hyalina Jaccetanica, Bourg. Guerin's Mag., t. 16, f. 24–28, 1870, . . . . . 152
93–94. Hyalina pura, Alder. Forbes and Hanley, Brit. Moll., t. 121, f. 5, 6, . . . . . 152
95–97. Hyalina lenticula, Held. Bull. Soc. Mal. Ital., viii, t. 2, f. 1, . . . . . 152
98–100. Hyalina electrina, Gld. (= radiatula, Alder). Binney, Terr. Moll., t. 29, f. 1, . . . . . 152
1–3. Hyalina Courquini, Bourg. Guerin's Mag., t. 16, f. 18–22, 1870, . . . . . 153
4–5. Hyalina excavata, Bean. Rossmassler, Iconog., n. s., i, t. 4, f. 33, . . . . . 153
6–8. Hyalina planaria, Clessin. Mal. Blatt., n. s., vi, t. 3, f. 2, 153
9–11. Hyalina Blidahensis, Bourg. Moll. Litig., ii, t. 37, f. 9, 11, 12. . . . . 153
12–14. Hyalina Durandoiana, Bourg. Guerin's Mag., t. 16, f. 13–16, 1870, . . . . . 154
15–17. Hyalina Dumontiana, Bourg. Mal. Gr. Chartreuse, t. 3, f. 9–11, . . . . . 154
18. Hyalina petronella, Charp. Reeve, Conch. Icon., f. 1416, 154

## Plate 50.

19–21. Hyalina Mortilleti Pecc. (= Gerfalchensis, Pecc.). Bull. Mal. Ital., i, t. 2, f. 8–10, . . . . . 154
22–24. Hyalina camelina, Bourg. Rossmassler, Iconog., vi, f. 1616, . . . . . 154
25–27. Hyalina hemipsorica, Morelet. Ibid., n. s., i, t. 3, f. 23, . . . . . 155

FIGURE. PAGE.
28, 29. Hyalina psatura, Bourg. Ibid., t. 3, f. 24, . . 155
30–32. Hyalina eurabdota, Bourg. Moll. Litig., ii, t. 37, f. 1, 3, 4, . . . . . 155
33–35. Hyalina cellaria, Müll. Rossmassler Iconog., ii, f. 527, . . . . . 155
36–38. Hyalina corneofulva, Pfr. (= cellaria). Novit. Conch., iii, t. 78, f. 11–13, . . . . . 155
39. Hyalina Sydneyensis, Cox (= cellaria). Austr. Land Sh., t. 18, f. 3, . . . . . 155
40, 41. Hyalina Sieversi, Böttger (= cellaria, var.). Rossmassler, Iconog., n. s., i, t. 1, f. 14, . . . . 155
42–44. Hyalina Villæ, Mort. (= cellaria, var.). Ibid., vi, f. 1603, . . . . . 156
45, 46. Hyalina Sicula, Rossm. (= cellaria, var.). Ibid., vi, f. 1602, . . . . . 156
47–49. Hyalina sancta, Bourg. (= cellaria, var.). Ibid., vi, f. 1601, . . . . . 156
50–52. Hyalina Canariæ, Mouss. (= cellaria, var.). Novit. Conch., iv, t. 119, f. 16–18, . . . . . 156
53–55. Hyalina chelia, Bourg. Rossmassler, Iconog., n. s., i, t. 3, f. 21, . . . . . 156
56–58. Hyalina Pilatica, Bourg. Mal. Lac Quatre Cantons, t. 1, f. 7–9, . . . . . 156
59–61. Hyalina Pictonica, Bourg. Guerin's Mag., t. 16, f. 7–9, 1870, . . . . . 156
62–64. Hyalina Pomeliana, Bourg. Moll. Litig., t. 37, f. 17, 19, 20, . . . . . 157
65–67. Hyalina circumlineata, Küster. Rossmassler, Icon., n. s., i, t. 4, f. 32, . . . . . 157
68–70. Hyalina Zapateri, Hidalgo. Ibid., x, f. 1419, . 157
71–73. Hyalina Isserica, Letourn. Moll. Litig., ii, t. 41, f. 1–3, . . . . . 157
74, 75. Hyalina subplicatula, Bourg. Moll. Reg. Tunis, t. 1, f. 5, 8, . . . . . 157

## Plate 51.

76–78. Hyalina De Natale, Benoit. Mal. Blatt., iii, t. 2, f. 4–6, . . . . . 157
79–81. Hyalina Atlantica, Morelet et Drouet. Moll. Acor., t. 3, f. 2, . . . . . 159
82–84. Hyalina Miguelina, Pfr. Ibid., t. 2, f 6, . . 159
85–87. Hyalina lenis, Shuttlew. Novit. Conch., iv, t. 119, f. 19–21, . . . . . 159
88–90. Hyalina scintilla, Lowe. Albers, Moll. Mad., t. 2, f. 23–25, . . . . . 160

FIGURE. PAGE

91–92. Hyalina festinans, Shuttlew. Novit., Conch., iv, t. 119, f. 22–24, . . . . . 160
93–95. Hyalina volutella, Pfr. Moll. Acor., t. 3, f. 1, . 160
96–98. Hyalina circumcessa, Shuttlew. Novit. Conch., iv, t. 120, f. 22–24, . . . . . 160
99–1. Hyalina indentata, Say. Binney, Terr. Moll., t. 29, f. 2, . . . . . 160
2. Hyalina semicostulata, Beck. Reeve, Iconog., f. 879, 158
3, 4. Hyalina sculptilis, Bland. Binney, Manual, f. 231, . 161
5, 6. Hyalina Elliotti, Redfield. Ibid., f. 232, . . . 161
7, 8. Hyalina Whitneyi, Newcomb. Binney, Manual, f. 50, 161
9–11. Hyalina arborea, Say. Binney, Terr. Moll., t. 29, f. 3, 161
12–14. Hyalina ottonis, Pfr. (= arborea). Ibid., t. 29 *a*, f. 3, 161
15–17. Hyalina Breweri, Newc. (= arborea). Am. Jour. Conch., ii, t. 19, f. 27, . . . . . 161
18, 19. Hyalina Wheatleyi, Bland. Binney, Manual, f. 237, 162
20, 21. Hyalina petrophila, Bland. Ibid., f. 238, . . 162
22. Hyalina Binneyana, Morse. Ibid., f. 174, . . . 162
23–25. Hyalina capsella, Gould. Binney, Terr. Moll., t. 29 *a*, f. 1, . . . . . 162
26, 27. Hyalina placentula, Shuttlew. Binney, Manual, f. 236, . . . . . 163
28, 29. Hyalina Lawi, W. G. Binney. Ibid., f. 235, . . 163
30–32. Hyalina effusa, Pfr. Specimen, . . . . 163
33–35. Hyalina incisa, Pfr. Specimen, . . . . 163
36–38. Hyalina albicans, Pfr. Küster, Conch. Cab., ii, t. 125, f. 16–18, . . . . . 163
39–41. Hyalina nitensoides, Orb. Moll. Cuba, t. 11, f. 9–11, . . . . . 164
42. Hyalina implicans, Guppy. Am. Jour. Conch., vi, t. 17, f. 2, . . . . . 164
43–45. Hyalina chersinella, Dall. Ibid., ii, t. 21, f. 4, . 161
46–48. Hyalina insignis, Orb. Voy. Amer. merid., t. 26, f. 14–17, . . . . . 164

## Plate 52.

49, 50. Hyalina saxatilis, Couthouy. Gould, Moll. Wilkes Exped., f. 33, . . . . . 164
51, 52. Hyalina ordinaria, Smith. Zool. Proc., t. 4, f. 16, 1881, . . . . . 164
53. Hyaline Besckei, Dunker. Conch. Icon., f. 1255, . 165
54–56. Hyalina Surinamensis, Pfr. Mal. Blatt., xix. t. 2, f. 14–16, . . . . . 165
57. Hyalina Santanaensis, Pfr. Conch. Icon., f. 1344, . 165
58. Hyalina Hondana, Pfr. Ibid., f. 1329, . . . 165

FIGURE. PAGE.
59, 60. Hyalina Tehuantepecensis, Crosse and Fischer, Mexico, t. 10, f. 1, . . . . . 165
61, 62. Hyalina permodesta, Strebel. Mex. Land Conch., Pt. 4, t. 4, f. 9, . . . . . 166
63–65. Hyalina Blakeana, Tate. Am. Jour. Conch., v, t. 16, f. 3, . . . . . 166
66–68. Hyalina Guayaquilensis, Pfr. Küster, Conch. Cab., ii, t. 139, f. 10, . . . . . 166
69–71. Hyalina decolorata, Drouet. Moll. Guiana, t. 1, f. 3–5, . . . . . 166
72–74. Hyalina subhyalina, Pfr. Strebel, Mex. Land. Conch., Pt. 4, t. 4, f. 14, . . . . . 166
75. Hyalina mediocris, Pfr. Conch. Icon., f. 1337, . . 166
76, 77. Hyalina subnitens, Gassies. Jour. de Conch., t. 14, f. 8, 1873, . . . . . 167
78, 79. Hyalina Hameliana, Crosse. Gassies, Moll. Nouv. Caled., iii, t. 1, f. 3, . . . . . 167
80, 81. Hyalina Noumeensis, Crosse. Jour. de Conch., t. 3, f. 6, 1874, . . . . . 167
82, 83, Hyalina xanthochroa, Crosse. Jour. de Conch., t. 6, f. 2, 1867, . . . . . 167
84, 85. Hyalina Perroquiniana, Crosse. Jour. de Conch., t. 13, f. 2, 1870, . . . . . 167
86, 87. Hyalina Bourailensis, Gassies. Jour. de Conch., t. 14, f. 2, 1873, . . . . . 167
88. Hyalina Koutoumensis, Gassies. Ibid., t. 2, f. 2, 1873, 168
89. Hyalina Desmazuresi, Crosse. Ibid., t. 11, f. 1, 1873, 168
90, 91. Hyalina Savesi, Gassies. Moll. Nouv. Caled., iii, t. 2, f. 18, . . . . . 168
92, 93. Hyalina Artensis, Souverb. Ibid., i, t. 1, f. 2, . 168
94–96. Hyalina Georgiana, Quoy. Voy. Astrol. Moll., t. 10, f. 26–30, . . . . . 168
97, 98. Hyalina Lyndhurstensis, Cox. Austr. Land Shells, t. 17, f. 1 *a*, . . . . . 169
99. Hyalina subangulata, Pfr. Reeve, Conch. Icon., f. 1301, 169
100. Hyalina annatonensis, Pfr. Ibid., f. 1409, . . . 169
1, 2. Hyalina albumenoidea, Cox. Austr. Land Shells, t. 12, f. 2, . . . . . 169
3. Hyalina subrugata, Pfr. Küster, Conch. Cab., t. 156, f. 9, . . . . . 169
4. Hyalina cimex, Pfr. Conch. Icon., f. 1411, . . . 170
5. Hyalina Kawaiensis, Pfr. Ibid., f. 1256, . . . 170
6–8. Hyalina Amboinensis, Martens. Preuss. Exped., t. 12, f. 11, . . . . . 170
9–11. Hyalina mamillaris, Heude. Hist. Nat. Emp. Chinois., t. 19, f. 8, . . . . . 170

## Plate 53.

FIGURE. PAGE.

12–14. Hyalina scrobiculata, Gredler. Jahrb. Mal. Gesell., xii, t. 6, f. 2, . . . . . 170
15–17. Hyalina perdita, Desh. Nouv. Arch. Mus. Bull., x, t. 1, f. 12–14, . . . . . 171
18–20. Hyalina Dönitzii, Reinh. Jahrb. Mal. Gesell., iv, t. 10, f. 3, . . . . . 171
21–23. Hyalina radiatella, Reinh. Ibid., t. 9, f. 5 *a*, . . 171
24–26. Hyalina Jessoensis, Reinh. Ibid., t. 9, f. 6, . . 171
27, 28. Hyalina nitida, Müller. Binney, Manual, f. 12, . 171
29, 30. Hyalina borealis, Clessin (= nitida, var.). Mal. Blatt., xxv, t. 3, f. 4, 5, . . . . . 172
31, 32. Hyalina Parisiaca, Mabille (= nitida, var.). Bull. Soc. Zool., ii, t. 1, f. 45, 46, . . . . . 172
33, 34. Nautilinus Clymene, Shuttlew. Novit. Conch., iv, t. 119, f. 33, . . . . . 172
35–37. Conulus fulva, Drap. Binney, Terr. Moll., iii, t. 17, f. 4, . . . . . 173
38. Conulus fulva, Drap. Binney, Manual, f. 26, . . 173
39. Conulus egena, Say (= fulva, Drap.). Conch. Icon., f. 1263, . . . . . 173
40. Conulus Fabricii, Beck. Ibid., f. 1459, . . . 173
41–43. Conulus egena, Gould (= Gundlachi). Binney, Terr. Moll., iii, t. 22 *a*, f. 3, . . . . . 174
44, 45. Conulus Gundlachi, Pfr. Binney, Manual, f. 382, . 174
46, 47. Conulus dioscoricola, Adams. Küster, Conch. Cab., i, t. 30, f. 31, . . . . . 174
48. Conulus epistyliulum, Adams. Ibid., ii, t. 108, f. 17 *x*, 174
49, 50. Conulus simulans, Adams. Ibid., ii, t. 129, f. 14, 15, 174
51. Conulus plagioptycha, Shuttlew. Conch. Icon., f. 1262, 174
52. Conulus Guatemalensis, Crosse and Fischer. Jour. de Conch., t. 9, f. 3, 1873, . . . . . 174
53. Conulus Cassiquiensis, Newcomb. Conch. Icon., f. 334, 175
54. Conulus Quitensis, Pfr. Ibid., f. 1340, . . . 175
55, 56. Conulus semen-lini, Moric. Küster, Conch. Cab., ii, t. 155, f. 11, 12, . . . . . 175
57. Conulus Paraguayana, Pfr. Conch. Icon., f. 1479, . 175
58. Conulus Martinezi, Hidalgo. Jour. de Conch., t. 6, f. 4, 1870, . . . . . 175
59, 60. Conulus micra, Morelet. Jour. de Conch., t. 10, f. 2, 1882, . . . . . 176
61–63. Conulus microsoma, Morelet. Ibid., t. 8, f. 13, 1883, 176
64. Conulus miccyla, Benson. Conch. Ind., t. 129, f. 8, . 176
65. Conulus turritella, H. Adams. Ibid., t. 86, f. 4, . . 176
66. Conulus Billeheustii, Crosse and Fischer. Jour. de Conch., t. 13, f. 8, 1864, . . . . . 177

FIGURE. PAGE.
67. Conulus orcula, Benson. Küster, Conch. Cat., t. 136, f. 19, . . . . . 177
68. Conulus cassidula, Benson. Conch. Ind., t. 16, f. 3, . 177
69. Conulus acalles, Pfr. Ibid., t. 128, f. 4, . . . 177
70. Conulus glomerosa, Anton. Shells of India, Pt. 3, t. 14, f. 9, . . . . . 177
71–73. Conulus sinapidium, Reinh. Jahrb. Mal. Gesell., iv, t. 10, f. 5, . . . . . 177
74–76. Conulus pustulina, Reinh. Ibid., iv, t. 10, f. 4, . 178

## Plate 54.

77–79. Conulus tenera, A. Ad. Jahrb. Mal. Gesell., iv, t. 10, f. 6, . . . . . 178
80–82. Conulus acutangula, A. Ad. Ibid., iv, t. 10, f. 7, . 178
83. Conulus Paramattensis, Cox. Austr. Land Shells, t. 6, f. 10, . . . . . 178
84. Conulus Wilcoxi, Cox. Ibid., t. 4, f. 12, . . . 178
85. Conulus Kempseyensis, Cox. Zool. Proc., t. 52, f. 6, 1871, 178
86, 87. Conulus Russelli, Brazier. Ibid., t. 83, f. 13, 14, 1874, . . . . . 179
88, 89. Conulus Elleryi, Brazier. Ibid., t. 83, f. 3, 4, 1874, 179
90, 91. Conulus microcosmos, Cox. Austr. Land Shells, t. 8, f. 12, . . . . . 179
92. Conulus scandens, Cox. Zool. Proc., 1871, t. 52, f. 5, . 179
93, 94. Conulus Penolensis, Cox. Austr. Land Shells, t. 11, f. 12, . . . . . 179
95. Conalus turriculata, Cox. Ibid., t. 8, f. 11, . . . 179
96–98. Conulus Layardi, Thomson. Zool. Proc., 27, 1885, 179
99. Conulus ostiolum, Crosse. Jour. de Conch., t. 14, f. 5, 1873, . . . . . 180
100. Conulus Vimontiana, Crosse. Ibid., t. 9, f. 2, 1875, . 180
1. Conulus dendrobia, Crosse. Ibid., t. 1, f. 5, 1868, . 180
2–4. Conulus Samoensis, Mousson. Specimen, . . 180
5, 6. Conulus Pinnocki, Liardet. Zool. Proc., t. 5, f. 5, 1876, . . . . . 180
7. Conulus Barkasi, Liardet. Ibid., t. 5, f. 6, 1876, . 180
8. Conulus Clayi, Liardet. Ibid., t. 5, f. 7, 1876, . . 181
9–11. Conulopolita Raddei, Böttger. Jahrb. Mal. Gesell., vi, t. 2, f. 1, . . . . . 181
12–14. Dierama dierama, Pfr. Küster, Conch. Cab., i, t. 25, f. 10–21, . . . . . 181
15. Phacussa hypopolia, Pfr. Conch. Icon., f. 787, . . 181
16. Stenopus livida, Guilding. Conch. Icon., f. 642, . 182
17. Stenopus Guildingii, Angas (= Angasi, Tryon). Zool. Proc., t. 40, f. 14, 1879, . . . . . 182

FIGURE. PAGE.
18–20. Stenopus Cayennensis, Pfr. Küster, Conch. Cab., ii, t. 84, f. 11–13, . . . . . 182
22. Stenopus micans, Angas. Zool. Proc., t. 40, f. 15, 1879, 182
23–25. Stenopus Guildingii, Bland. Ann. N. Y., Lyc., viii, p. 158, . . . . . 182
26. Stenopus cruentata, Guilding. Conch. Icon., f. 1463, 183
27. Stenopus Selenkai, Pfr. Crosse and Fischer, Mexico, t. 7, f. 9, . . . . . 183
28–30. Stenopus elegans, Strebel. Mex. Land Conch., Pt. iv, t. 4, f. 1, . . . . . 183

## Plate 55.

28. Omphalina capnodes, Binney. Terr. Moll., iv, t. 80, f. 14, 183
29. Omphalina capnodes, Binney. Manuel, f. 216, . . 183
30. Omphalina friabilis, W. G. Binney. Ibid., f. 219, . 183
31. Omphalina lucubrata, Say. Am. Jour. Conch., ii, t. 18, f. 14, . . . . . 184
32, 33. Omphalina lucubrata, Say. Crosse and Fischer, Mexico, t. 7, f. 4, . . . . . 184
34, 35. Omphalina lævigata, Pfr. Am. Jour. Conch., ii, t. 18, f. 13, . . . . . 184
36, 37. Omphalina Rugeli, W. G. Binney. Ann. N. Y. Acad., i, t. 15, f. 11, . . . . . 184
38–40. Omphalina inornata, Say. Binney, Terr. Moll., iii, t. 34, . . . . . 184
41–43. Omphalina subplana, Binney. Ibid., t. 33, . . 185
44–46. Omphalina fuliginosa, Griffith. Ibid., t. 31, . . 185
47, 48. Moreletia Paradensis, Pfr. Crosse and Fischer, Mexico, t. 7, f. 7, . . . . . 185
49–51. Moreletia caduca, Pfr. Ibid., t. 7, f. 3, . . . 186
52–54. Moreletia angiomphala, Strebel. Mex. Landconch., t. 1, f. 8, . . . . . 186
55, 56. Moreletia metonomastica, Crosse and Fischer, Mexico, t. 7, f. 2, . . . . . 186

## Plate 56.

57–59. Moreletia euryomphala, Pfr. Crosse and Fischer, Mexico, t. 7, f. 1, . . . . . 187
60, 61. Zonyalina Veracruzensis, Pfr. Ibid., t. 7, f. 8, . 187
62–64. Zonyalina Jalapensis, Strebel. Mex. Land Conch., Pt. 4, t. 2, f. 11, . . . . . 187
65–67. Zonyalina sigmoides, Morelet. Crosse and Fischer, Mexico, t. 12, f. 6, . . . . . 187
68–70. Zonyalina bilineata, Pfr. Küster, Conch. Cab., ii, t. 83, f. 23–25, . . . . . 187

FIGURE. PAGE.
71, 72. Zonyalina venusta, Strebel. Crosse and Fischer, Mexico, t. 7, f. 5, . . . . . 188
73, 74. Zonyalina Tuxtlensis, Crosse and Fischer. Mexico, t. 7, f. 6, . . . . . 188
75–77. Patulopsis carinata, Strebel. Mex. Land Conch., Pt. 4, t. 4, f. 15, . . . . . 188
78–80. Ægopina zonitomæa, Letourn. Ann. de Malacol., i, Pt. 3, t. 6, f. 15, . . . . . 188
81–83. Ægopina olivetorum, Herm. Rossmassler, Iconog., vi, t. 154, f. 1568, . . . . . 188
84, 85. Ægopina icterica, Tiberi. Ibid., vi, t. 155, f. 1575, 189
86, 87. Ægopina fuscosa, Ziegler. Ibid., vi, f. 1574, . . 189

PLATE 57.

88–91. Ægopina Maurolici, Benoit. Rossmassler, Iconog., vi, t. 154, f. 1569, 1570, . . . . . 189
92–94. Ægopina Carotii, Paulucci. Ibid., n. s., i, t. 2, f. 17, 189
95–97. Ægopina fragrans, Paulucci. Ibid., n. s., i, t. 2, f. 18, 189
98, 99. Ægopina Benoiti, Villa. Ibid., vi, f. 1571, . . 189
100, 1. Ægopina Calcaræ, Aradas. Ibid., vi, f. 1572, . . 190
2–4. Ægopina obscurata, Porro. Bull. Soc. Ital. Mal., viii, t. 2, f. 2, . . . . . 190
5–7. Ægopina Porroi, Paulucci. Ibid., viii, t. 2, f. 4, . 190
8–10. Ægopina Antoniana, Paulucci. Ibid., viii, t. 2, f. 3, 190
11, 12. Ægopina obscurata, Porro (= tropidophora, Mabille). Rossmassler, Iconog., vi, f. 1586, . . 190
13, 14. Ægopina fulgida, Parreyss. Ibid., vi, f. 1587, . 190
15–17. Ægopina Isseliana, Paulucci. Bull. Soc. Mal. Ital., viii, t. 9, f. 13, . . . . . 191
18, 19. Ægopina incerta, Drap. Rossmassler, Iconog., vi, f. 1576, . . . . . 191

PLATE 58.

20–22. Ægopina meridionalis, Paulucci. Rossmassler, Iconog., n. s., i, t. 1, f. 10, . . . . . 191
23–25. Ægopina superflua, Rossm. Küster, Conch. Cab., ii. t. 121, f. 10–12, . . . . . 191
26–28. Ægopina Cretensis, Blanc. Rossmassler, Iconog., n. s., i, t. 2, f. 19, . . . . . 192
29–31. Ægopina Duboisi, Charp. Ibid., vi, f. 1593, . . 192
32–34. Ægopina elegans, Böttger. Ibid., n. s., i, t. 2, f. 15, 192
35–38. Ægopina filicum, Kryn. Ibid., vi, f. 1594, 1595, . 192
39, 40. Ægopina Kutaisiana, Mouss. Ibid., vi, f. 1598, . 192
41–43. Ægopina transitans, Böttger. Jahr. Mal. Gesell., t. 5, f. 5, 1883, . . . . . 192

FIGURE. PAGE.
44–46. Ægopina Mingrelica, Mousson. Rossmassler, Icon., vi, f. 1596, . . . . . 192
47. Ægopina intermissa, Mousson. Ibid., vi, f. 1597, . 193
48–50. Ægopina Pontica, Böttger. Ibid., N. S., i, t. 2, f. 16, 193
51–53. Ægopina reticulata, Böttger. Jahrb. Mal. Gesell., t. 5, f. 4, 1883, . . . . . 193
54–56. Ægopina suanetica, Böttger. Ibid., t. 5, f. 3, 1883, 193

## Plate 59.

57–59. Ægopina sucinacea, Böttger. Jahrb. Mal. Gesell., t. 5, f. 2, 1883, . . . . . 193
60–62. Ægopina selecta, Mousson. Rossmassler, Iconog., vi, f. 1599, . . . . . 193
63–65. Ægopina Simoni, Böttger. 22–23 Bericht Offenbach, t. 1, f. 1, . . . . . 193
66, 67. Ægopina cypria, Pfr. Rossmassler, Iconog., vi, f. 1579, . . . . . 194
68, 69. Ægopina Malinowski, Zelebor. Ibid., vi, f. 1578, 194
70–72. Ægopina semisculpta, Mousson. Jour. de Conch., t. 2, f. 1, 1876, . . . . . 194
75–77. Ægopina Jebusitica, Roth. Rossmassler, Iconog., vi, f. 1615, . . . . . 194
78–80. Ægopina complanata, Desh. Fér., Hist. Moll., t. 69 *b*, f. 2, . . . . . 195
81–83. Ægopina Djurjurensis, Debeaux. Rossmassler, Iconog., vi, f. 1606, . . . . . 195
84–86. Ægopina Tetuanensis, Kobelt. Ibid., N. S., i, t. 2, f. 20, . . . . . 196
87, 97, 98. Ægopina suturalis, Böttger. Ibid., N. S., i, t. 1, f. 11, . . . . . 195
88–90. Ægopina Natolica, Albers. Ibid., vi, t. 157, f. 1600, 194
91–93. Ægopina protensa, Fér. Küster, Conch. Cab., ii, t. 83, f. 4–6, . . . . . 194
94–96. Ægopina æquata, Mousson. Rossmassler, Iconog., vi, f. 1581, 1583, . . . . . 194
99–1. Ægopina nitellina, Bourg. Ibid., vi, f. 1613, . . 195
2, 3. Ægopina Moussoni, Kobelt. Ibid., vi, f. 1584, . 195

## Plate 60.

64. Hyalina Griffithi, Pfr. Reeve, Conch. Icon., Helix, f. 579, . . . . . 185
5, 6. Hyalina intertexta, Binney. Terr. Moll., iii, t. 36, . 196
7–9. Hyalina ligera, Say. Ibid., t. 35, . . . . 196
10–12. Hyalina demissa, Binney. Ibid., t. 42, f. 1, . . 197

FIGURE. PAGE.

13. Hyalina demissa, var. acerra, Lewis. W. G. Binney, Manual, p. 213, f. 224, . . . . . 197
14. Hyalina cerinoidea, Anthony. Amer. Jour. Conch., i, t. 25, f. 4, . . . . . 197
15–17. Hyalina lasmodon, Phillips. Binney, Terr. Moll., t. 37, f. 2, . . . . . 197
18, 19. Hyalina macilenta, Shuttlew. Ann. N. Y. Acad., i, t. 15, f. *B*, . . . . . 197
20–22. Hyalina interna, Say. Binney, Terr. Moll., t. 30, f. 4, 198
23, 24. Hyalina significans, Bland. Ann. N. Y. Acad., i, t. 15, f. *G*, . . . . . 198
25, 26. Hyalina multidentata, Binney. Ibid., t. 15, f. *F*, . 198
27, 28. Hyalina Andrewsi, W. G. Binney. Ibid., t. 15, f. *D*, 198
29–31. Hyalina Hillei, Gundlach. Specimen, . . . 199
32, 33. Hyalina Blandii, Weinland. Jahrb. Mal. Gesell., vii, t. 12, f. 23, . . . . . 199
34. Hyalina ensifera, Mousson. Jour. de Conch., t. 14, f. 2, 1869, . . . . . 199
35–38. Hyalina gularis, Say. Terr. Moll., t. 37, f. 3, 4, . 199
39. Hyalina gularis, var. cuspidatus, Lewis. W. G. Binney, Manual, p. 226, f. 243, . . . . . 200
40–42. Hyalina suppressa, Say. Binney, Terr. Moll., t. 37, f. 1, . . . . . 200
43–45. Hyalina lineata, Say. Ibid., t. 48, f. 1, . . . 200
46, 47. Hyalina lineata, Say. W. G. Binney, Manual, p. 75, f. 37, . . . . . 200
48, 49. Hyalina fimbriata, Wetherby. Ibid., p. 262, f. 278, 200
50–52. Hyalina opalina, Adams. Küster, Conch. Cab., t. 100, f. 24–27, . . . . . 201
53, 54. Hyalina ferrea, Morse. W. G. Binney, Manual, p. 181, f. 175, . . . . . 201
55–57. Hyalina limatula, Ward. Binney, Terr. Moll., t. 30, f. 3, . . . . . 201
58–60. Hyalina minuscula, Binney. Ibid., t. 17, f. 2, . 202
61–63. Hyalina Lavalleana, Orb. (= minuscula). Cuba., t. 8, f. 20–22, . . . . . 202
64, 65. Hyalina milium, Morse. W. G. Binney, Manual, p. 66, f. 23, . . . . . 203
66. Hyalina exigua, Stimpson. Ibid., p. 181, f. 177, . . 203
67. Hyalina exigua, Stimpson. W. G. Binney, Terr. Moll., iv, t. 77, f. 19, . . . . . 203
68. Hyalina conspecta, Bland. W. G. Binney, Manual, p. 86, f. 51, . . . . . 203
69. Hyalina Mazatlanica, Pfr. Tryon, Terr. Moll., t. 4, f. 59, 204
70–72. Hyalina elegantula, Pfr. Mex. Landconch, Pt. 4, t. 4, f. 11, . . . . . 204

FIGURE. PAGE.
73–75. Hyalina exulata, Smith. Zool. Proc., t. 23, f. 18, 1884, . . . . . 204
76–78. Hyalina saxicola, Gld. (= incrustata, Poey). Binney, Terr. Moll., t. 29 *a*, f. 4, . . . . . 204
79–81. Hyalina Berendti, Pfr. Mal. Blatt., viii, t. 1, f. 10–12, 204
82–84. Hyalina Pompylia, Shuttlew. Novit. Conch., iv, t. 120, f. 30–32, . . . . . 204
85–87. Hyalina bifrons, Lowe. Küster, Conch Cab., t. 111, f. 23–25, . . . . . 205
88–90. Hyalina stephanophora, Desh. Ibid., t. 154, f. 4–6, 205
91–93. Selenites Vancouverensis, Lea. Binney, Terr. Moll., iii, t. 20, . . . . . 205
94. Selenites sportella, Gould. Tryon, Terr. Moll, t. 3, f. 7, 205
95. Selenites sportella, Gould. Binney, Terr. Moll., iii, t. 22 *a*, f. 1, . . . . . 205
96–98. Selenites concava, Say. Ibid., iii, t. 21, . . 206
99, 100. Selenites Voyana, Newcomb. Am. Jour. Conch., i, t. 25, f. 3, . . . . . 206
1, 2. Selenites Hemphilli, W. G. Binney. Manual, 85, f. 48, 207
2 *a*. Selenites Belcheri, Pfr. Reeve, Conch. Icon., f. 1328, 207
3–5. Selenites Andium, Phil. Pfr., Novit. Conch., ii, t. 72, f. 1–3, . . . . . 207
6. Selenites euspira, Pfr. Reeve, Conch. Icon., f. 1277, . 207
7–9. Selenites paucispira, Poey. Specimen, . . . 207
10, 11. Selenites Duranti, Newcomb. W. G. Binney, Manual, p. 85, f. 49, . . . . . 208
12–14. Selenites concolor, Fér. Shuttlew. Notitiæ, ii, t. 12, 208

## Plate 62.

15, 16. Selenites Baudoni, Petit. Jour. de Conch., t. 11, f. 5, 1853, . . . . . 208
17, 18. Charopa sericatula, Pfr. Cox, Austr. Land Shell, t. 12, f. 6, . . . . . 208
19, 20. Charopa biretracta, Mousson. Jour. de Conch., t. 4, f. 1, 1869, . . . . . 208
21, 22. Charopa inusta, Cox. Austr. Land Sh., t. 10, f. 3, 209
23, 24. Charopa funerea, Cox. Ibid., t. 3, f. 1, . . . 209
25, 26. Charopa Albanensis, Cox. Ibid., t. 4, f. 2, . . 209
27. Charopa Macquariensis, Cox. Zool. Proc., t. 52, f. 7, 1871, . . . . . 209
28, 29. Charopa Juloidea, Forbes. Austr. Land Sh., t. 11, f. 19, . . . . . 209
30, 31. Charopa Le Grandi, Cox. Ibid., t. 12, f. 7, . . 209
32–34. Charopa Ida, Gray. Küster, Conch. Cab., t. 155, f. 34–36, . . . . . 210

FIGURE. PAGE.
35–37. Charopa ziczac, Gould. Moll. Wilkes' Exped., t. 4, f. 44, . . . . . 210
38. Charopa guttula, Pfr. Reeve, Conch. Icon., f. 1040, . 211
39. Charopa dimorpha, Pfr. Reeve, Ibid., f. 775, . . 211
40. Charopa Tullia, Gray. Reeve, Conch. Icon., f. 1460, 211
41. Charopa Celinde, Gray. Ibid., f. 799, . . . 211
42. Charopa Ophelia, Pfr. Ibid., f. 1345, . . . . 211
43. Charopa pilula, Reeve (= iota, Pfr.). Ibid., f. 809, . 212
44. Charopa rustica, Pfr. (= iota, Pfr., var.). Austr. Land Shells, t. 9, f. 3, . . . . . 212
45. Charopa impexa, Reeve (= iota, Pfr., var.). Conch. Icon., f. 795, . . . . . 212
46. Charopa glaberrima, Pfr. Ibid., f. 1317, . . . 212
47–49. Charopa fricata, Gould. Moll. Wilkes' Exped., t. 5, f. 71, . . . . . 213
50. Charopa cygnea, Benson. Reeve, Conch. Icon., f. 1182, 213
51. Charopa sublesta, Benson. Ibid., f. 1177, . . . 213
52. Charopa radiaria, Pfr. Ibid., f. 1322, . . . . 213
53–55. Charopa timida, Hombr. et Jacq. Voy. Astr. et Zel., t. 6, f. 18–20, . . . . . 213
56. Charopa collyrula, Reeve (= Portia, Gray). Conch. Icon., f. 811, . . . . . 213
57. Charopa Sandvicensis, Pfr. Reeve, Conch. Icon., f. 610, 213
58, 59. Charopa pudibunda, Cox. Austr. Land Shells, t. 2, f. 11, . . . . . 214

## Plate 63.

60–62. Charopa Kappa, Pfr. (= Portia, Gray). Küster, Conch. Cab., t. 154, f. 26–28, . . . . . 213
63, 64. Charopa Zelandiæ, Gray. Ibid., t. 156, f. 5, 4, . 214
65–67. Charopa antipodarum, Hombr. et Jacq. Voy. Astr. et Zel., t. 6, f. 13–15, . . . . . 214
68–70. Charopa Traversi, Smith. Zool. Proc., t. 23, f. 16, 1884, . . . . . 214
71. Charopa convexiuscula, Pfr. Conch. Ind., t. 128, f. 5, 214
72, 73. Charopa aulopsis, Benson. Ibid., t. 30, f. 8, 9, . 215
74, 75. Charopa liratula, Pfr. Ibid., t. 150, f. 5, 6, . . 215
76. Charopa delta, Pfr. Cox, Austr. Land Sh., t. 4, f. 13, 215
77–79. Micromphalia alveolus, Gassies. Jour. de Conch., t. 11, f. 1, 1881, . . . . . 216
80. Ariophanta Salangana, Martens. Mittheil., t. 25, f. 8, 217
81, 82. Caldwellia Boryana, Morelet. Küster, Conch. Cab., t. 178, f. 22, 23, . . . . . 218
83–85. Sitala sphæra, Heude. Hist. Nat. Emp. Chinois, t. 27, f. 3, . . . . . 218

FIGURE. PAGE.
86–88. Polita decipiens, Böttger. Jahrb. Mal. Gesell., xiii, t. 3, f. 1, . . . . . 220
89. Vitrea Daghestana, Böttger. Ibid., t. 3, f. 7, . . 220
90. Sessara Bouyeri, Crosse et Fischer. Jour. de Conch., t. 9, f. 7, 1863, . . . . . 219
91. Conulus Dorri, Wattebled. Ibid., t. 4, f. 2, . . 220
92. Conulus Hueensis, Wattebled. Ibid., t. 4, f. 3, . . 220
93–95. Polita Derbentina, Böttger. Jahrb. Mal. Gesell., xiii, t. 3, f. 3, . . . . . 220
96, 97. Ægopina herculea, Rambur. Jour. de Conch., t. 9, f. 7, 1869, . . . . . 221
98, 99. Macrochlamys villaris, Cox. Austr. Land Sh., t. 10, f. 8, . . . . . 219
100–2. Kaliella pyramis, Heude. Hist. Nat. Emp. Chin., t. 27, f. 9, . . . . . 218
3–5. Kaliella filocincta, Heude. Ibid., t. 27, f. 5, . . 219
6–8. Kaliella cuneus, Heude. Ibid., t. 27, f. 6, . . 219

## Plate 64.

9–11. Conulus infracinctus, Heude. Hist. Nat. Emp. Chin., t. 27, f. 8, . . . . . 216
12–14. Nanina Fargesiana, Heude. Ibid., t. 26, f. 7, . 217
15–17. Nanina buccata, Heude. Ibid., t. 26, f. 8, . . 216
18. Nanina infantilis, Gredler. Jahrb. Mal. Gesell., xi, t. 3, f. 2, . . . . . 216
19, 20. Nanina flavopurpurea, Heude. Hist. Nat. Emp. Chin., t. 26, f. 10, . . . . . 216
21–23. Ariophanta Delavayana, Heude. Ibid., t. 26, f. 9, . 217
24–26. Nanina distorta, Heude. Ibid., t. 26, f. 11, . . 217
27–29. Nanina derelicta, Heude. Ibid., t. 29, f. 4, . . 217
30–32. Nanina unica, Heude. Ibid., t. 28, f. 3, . . . 217
33, 34. Sitala bifilaris, Heude. Ibid., t. 27, f. 7, . . 218
35–37. Nanina sciadophila, Heude. Ibid., t. 28, f. 4, . 217
38, 39. Sitala pegasus-Sinensis, Heude. Ibid., t. 26, f. 5, . 218

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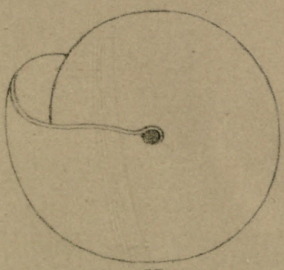
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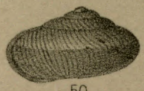
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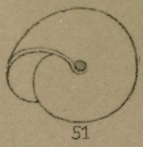
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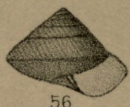
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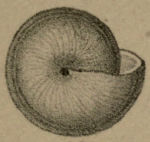
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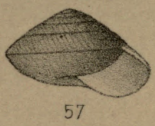
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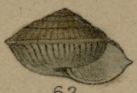
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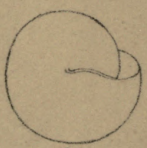
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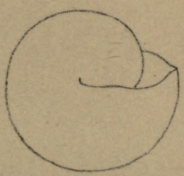
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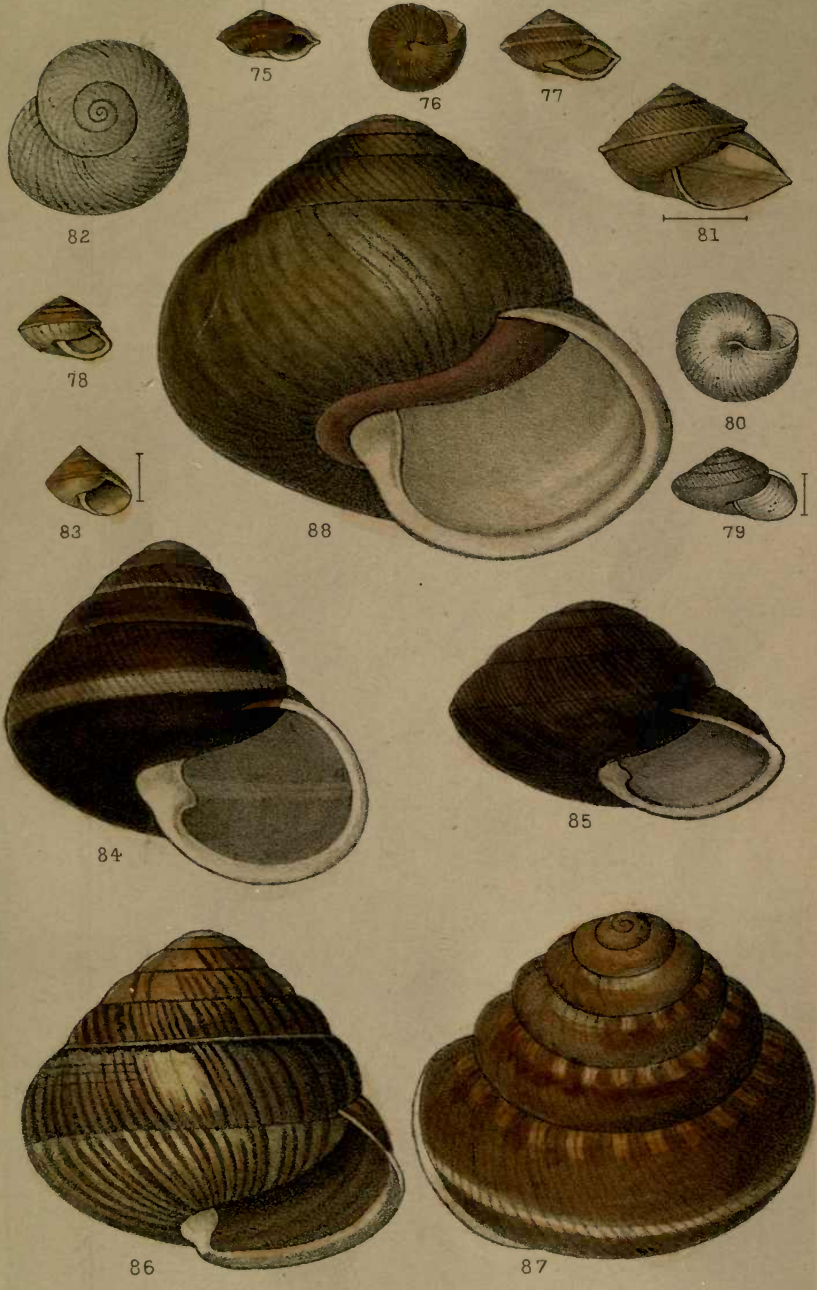
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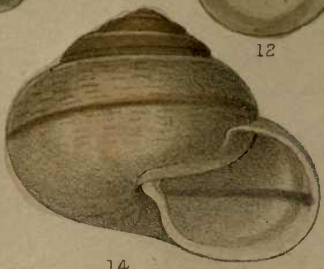
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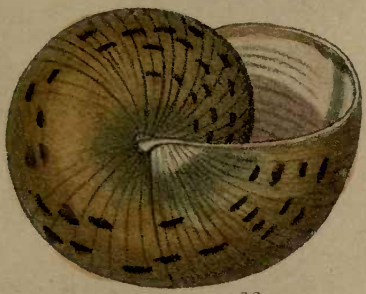
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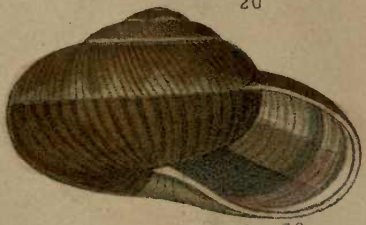
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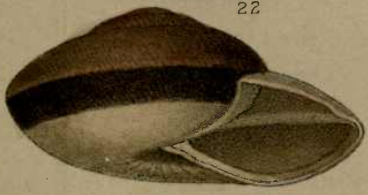
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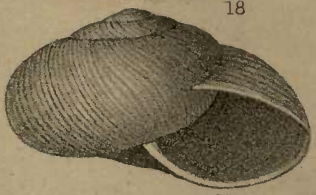
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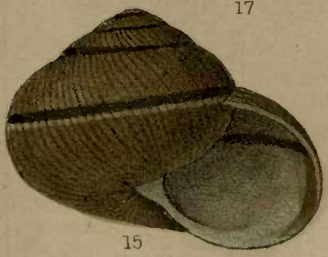
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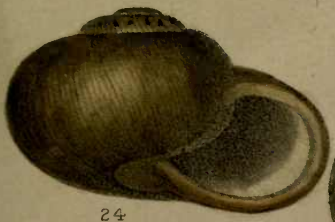

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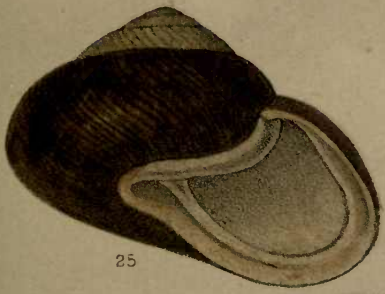

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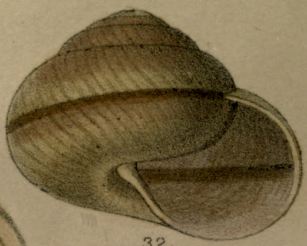

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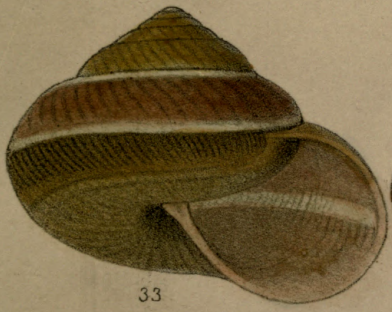

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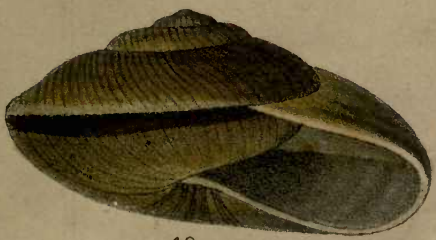

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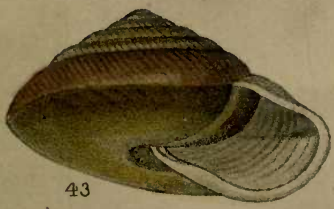

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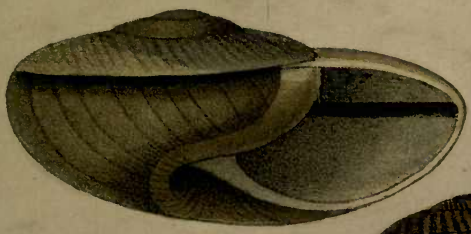

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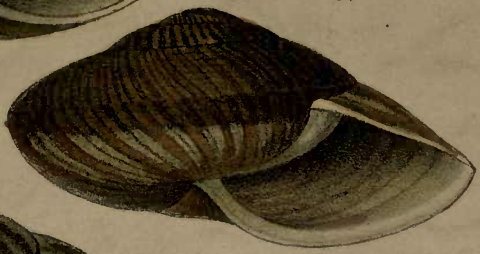

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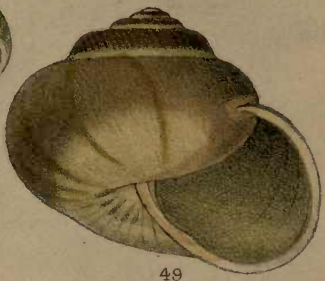

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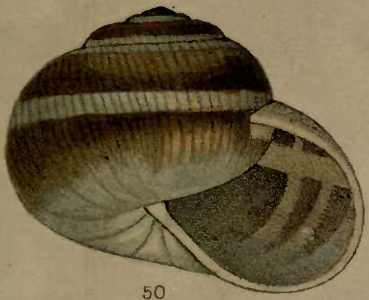

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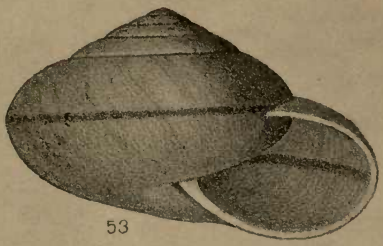

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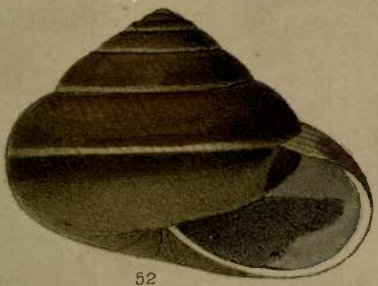

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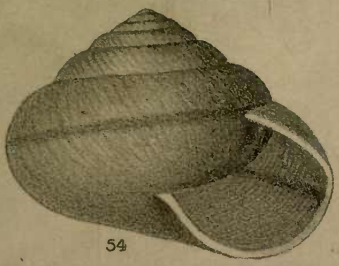

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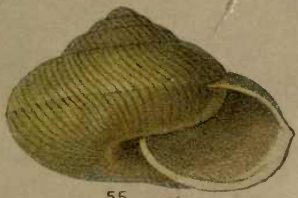

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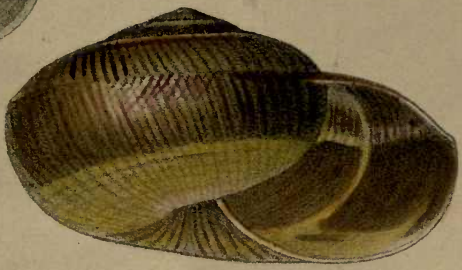

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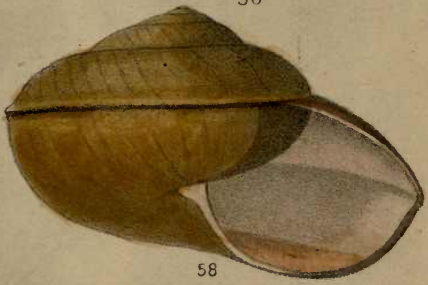

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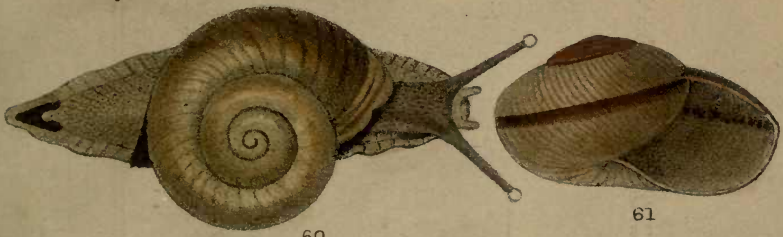

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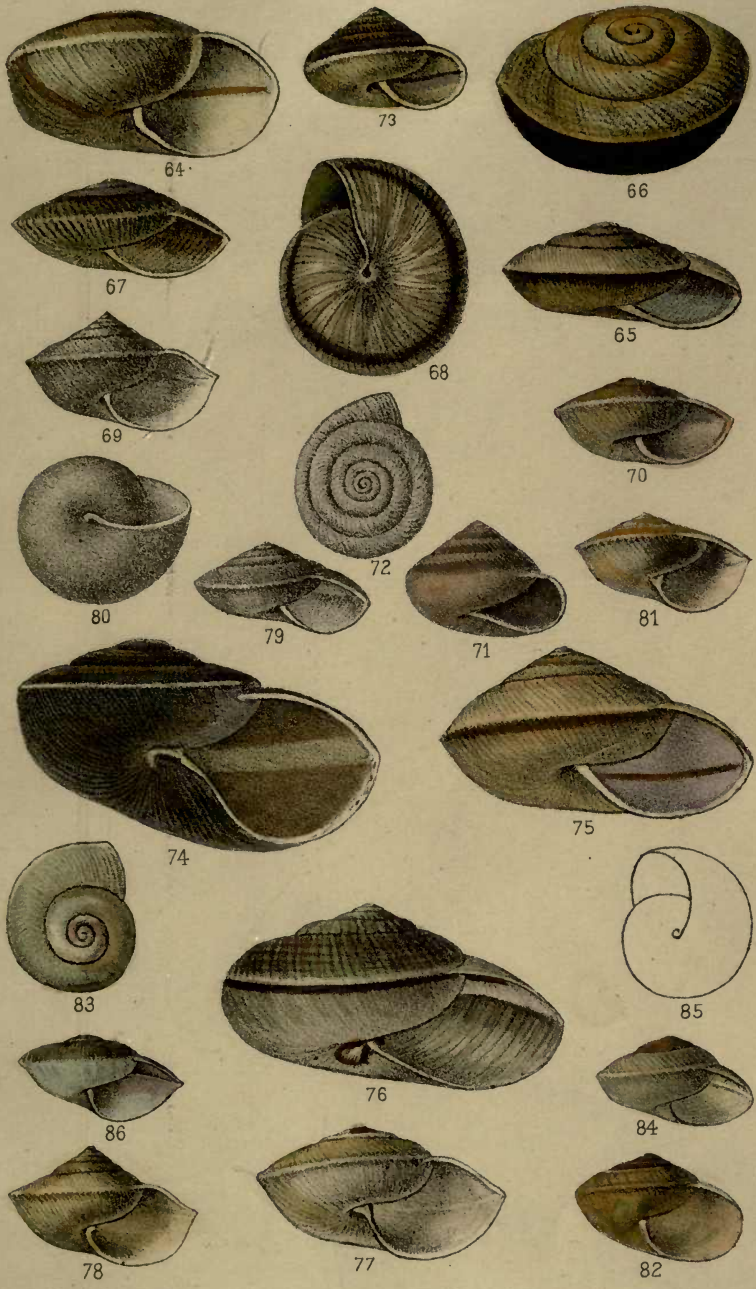
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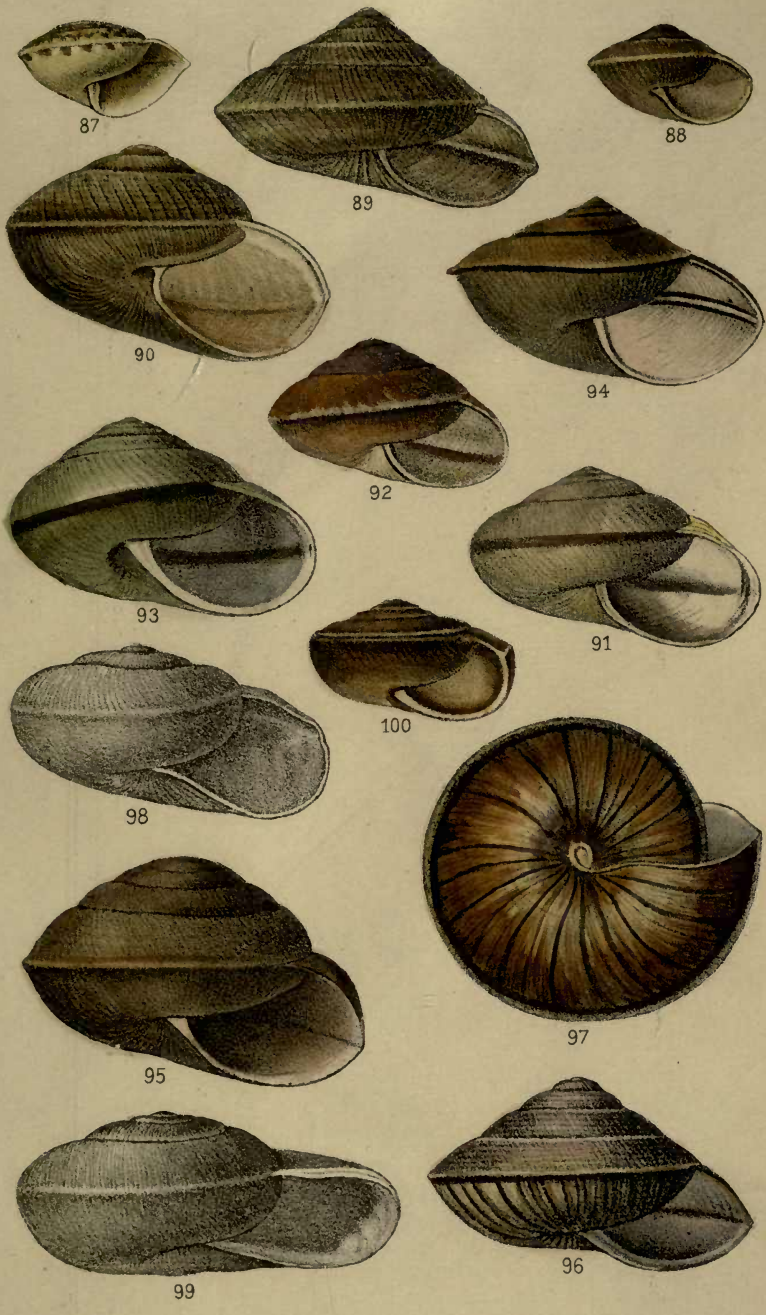
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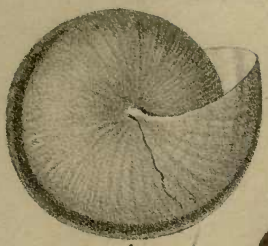
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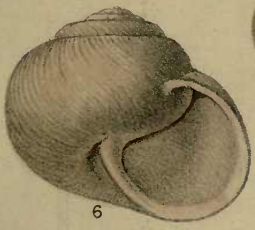
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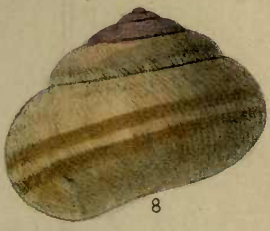
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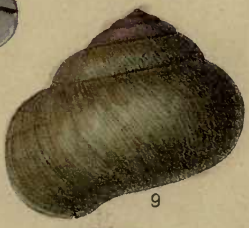
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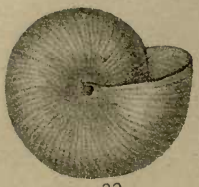
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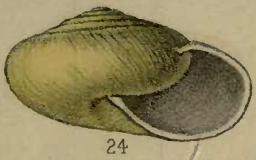
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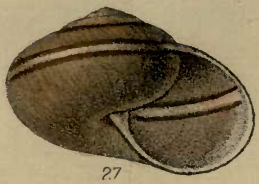
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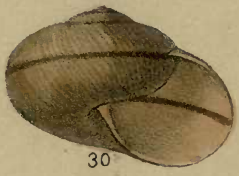
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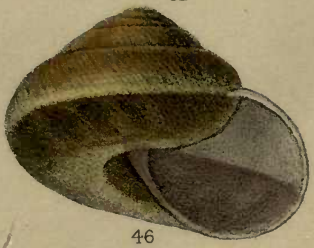
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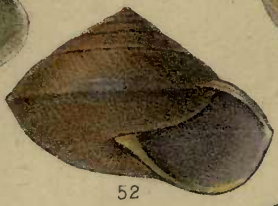
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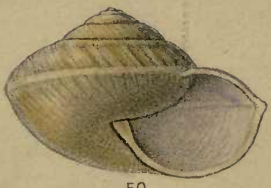
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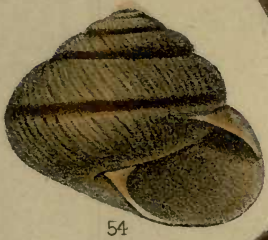
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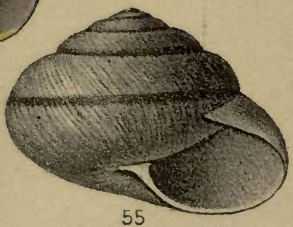
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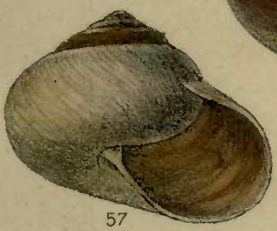
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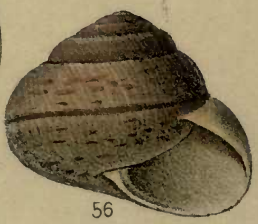
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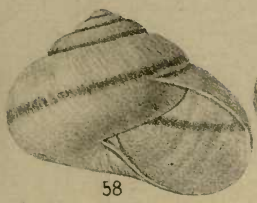
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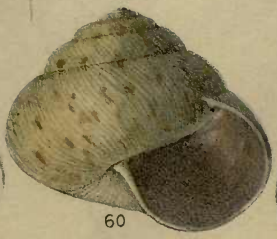
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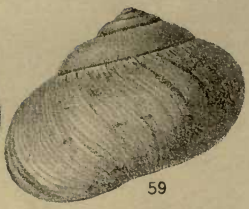
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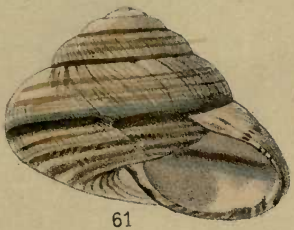
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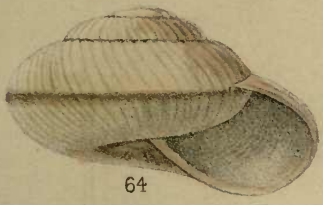
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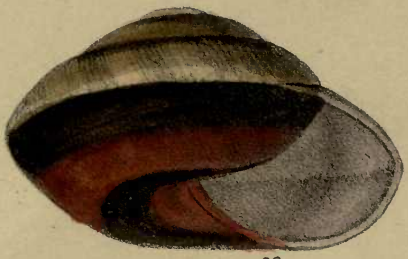
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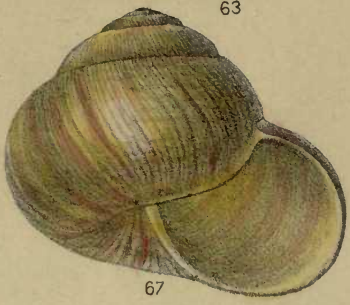
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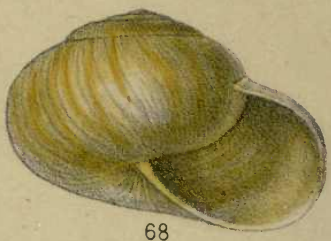
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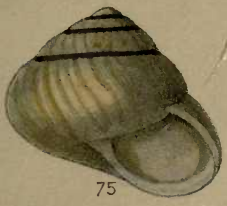
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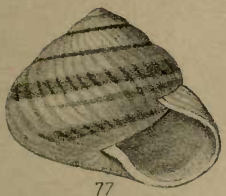
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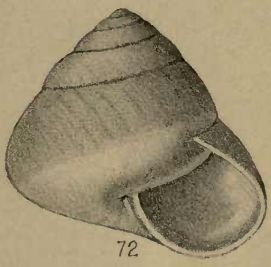
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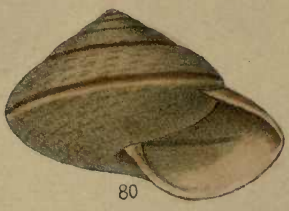
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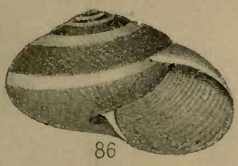
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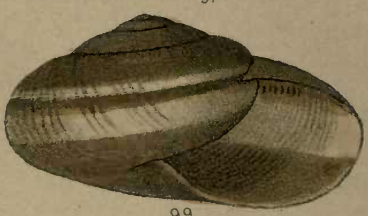
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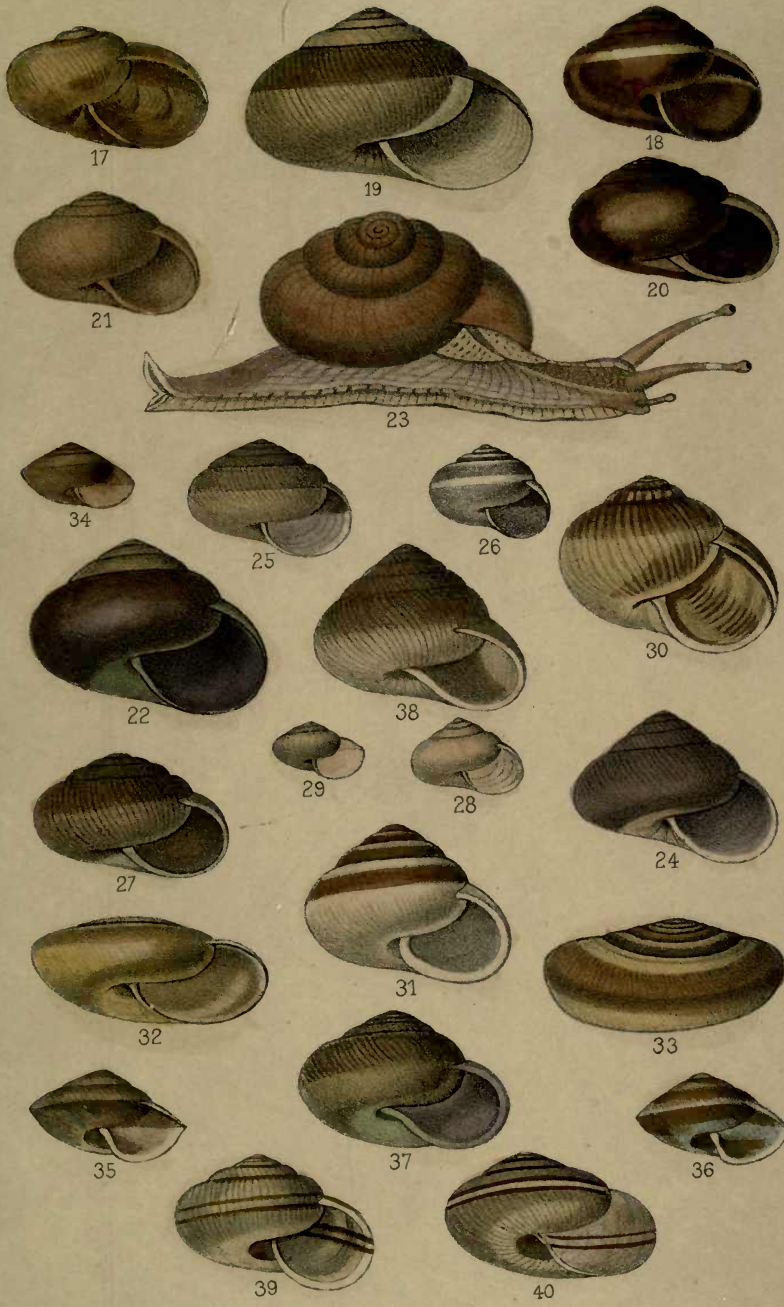
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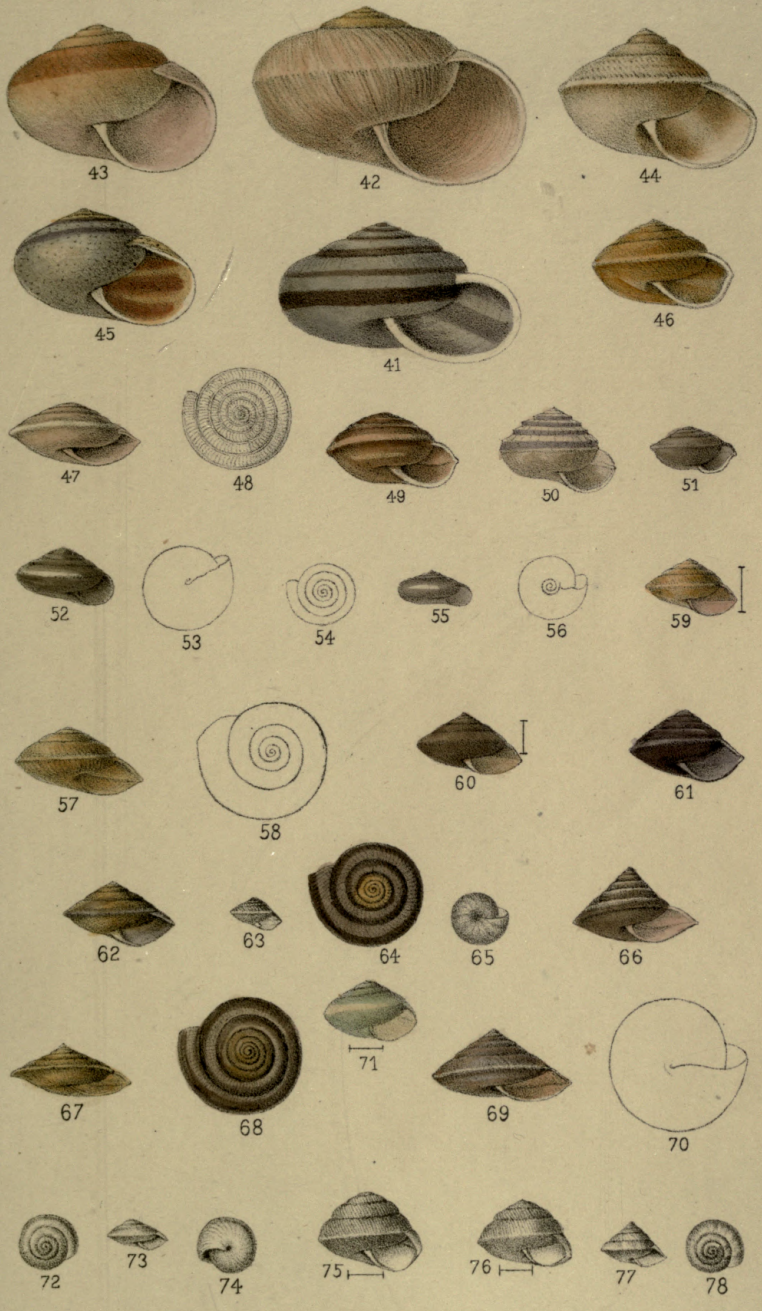
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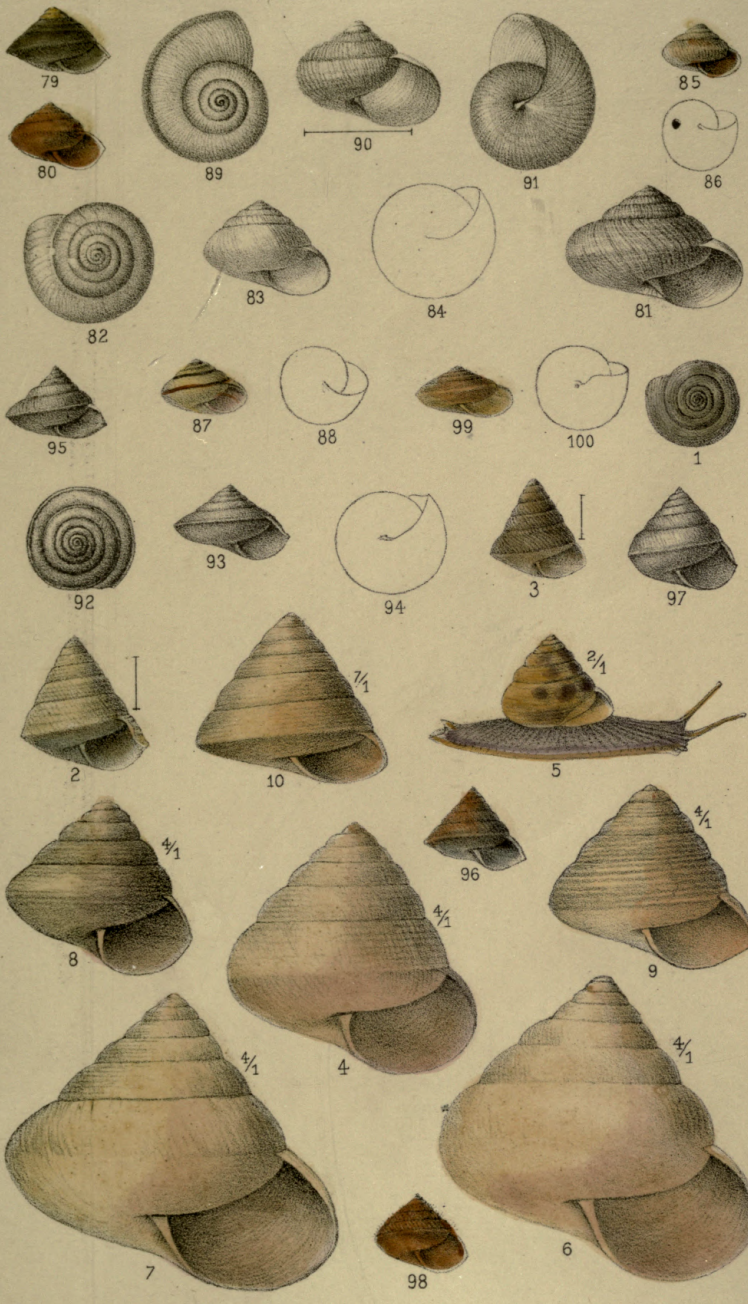
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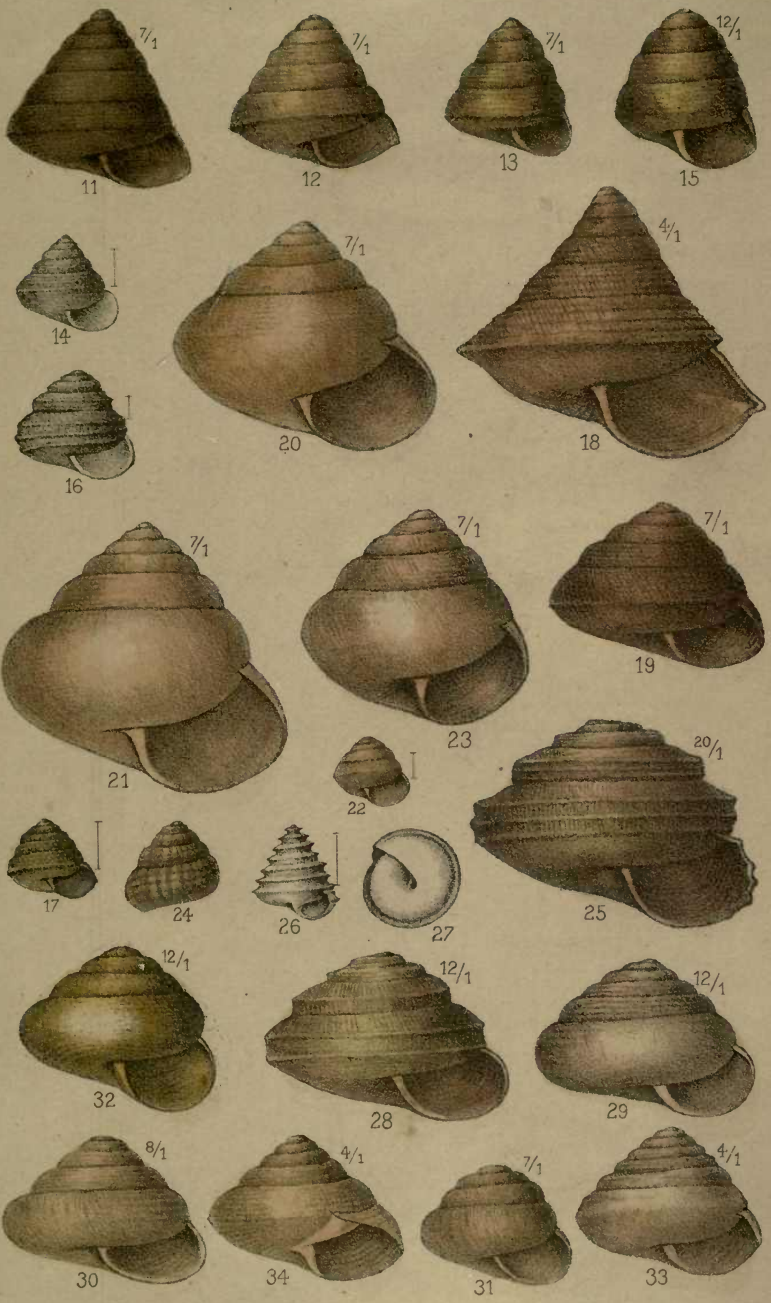
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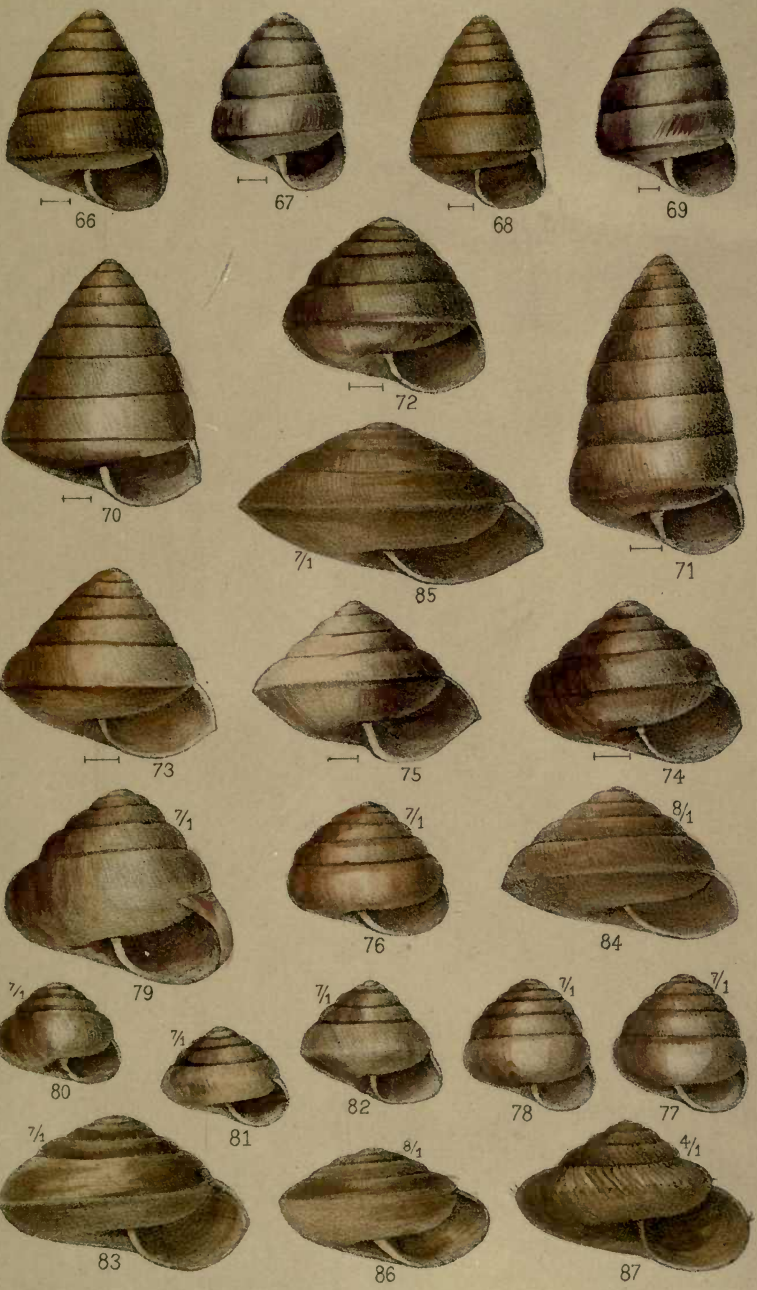
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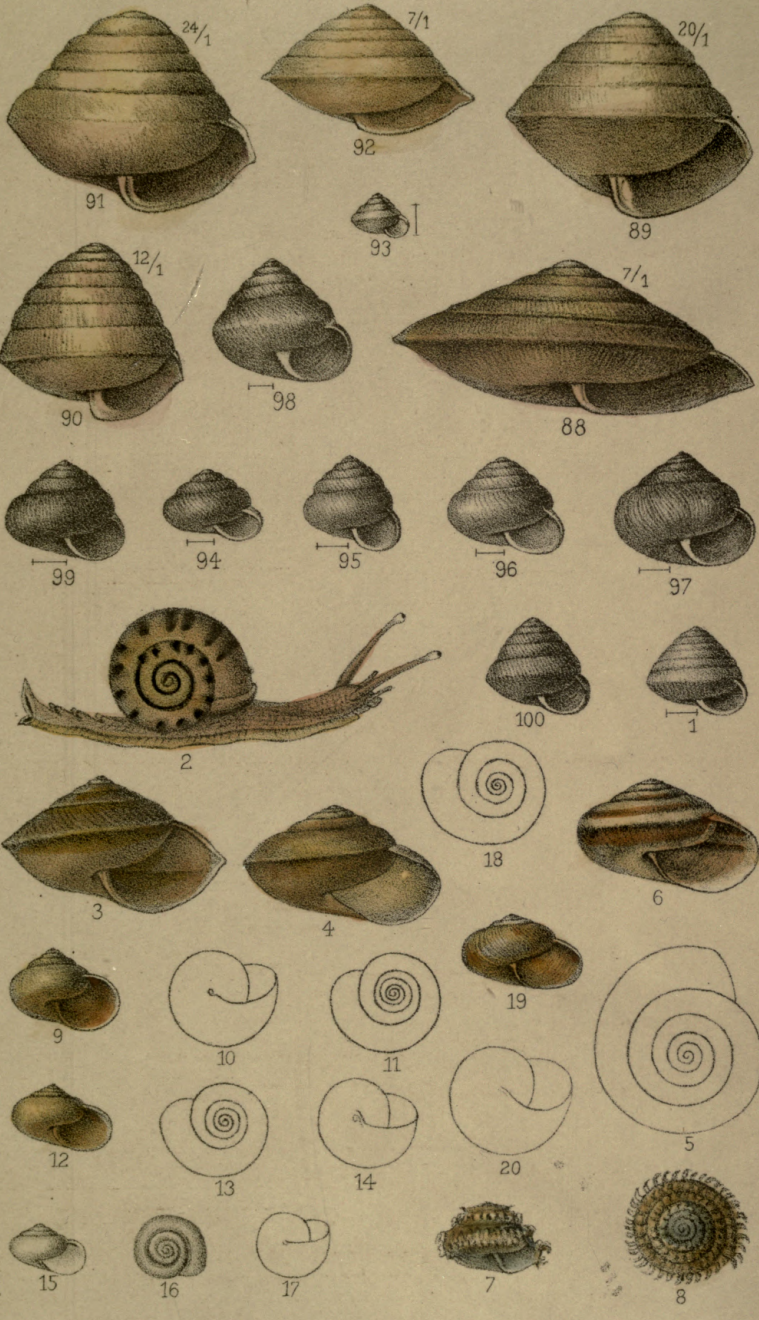
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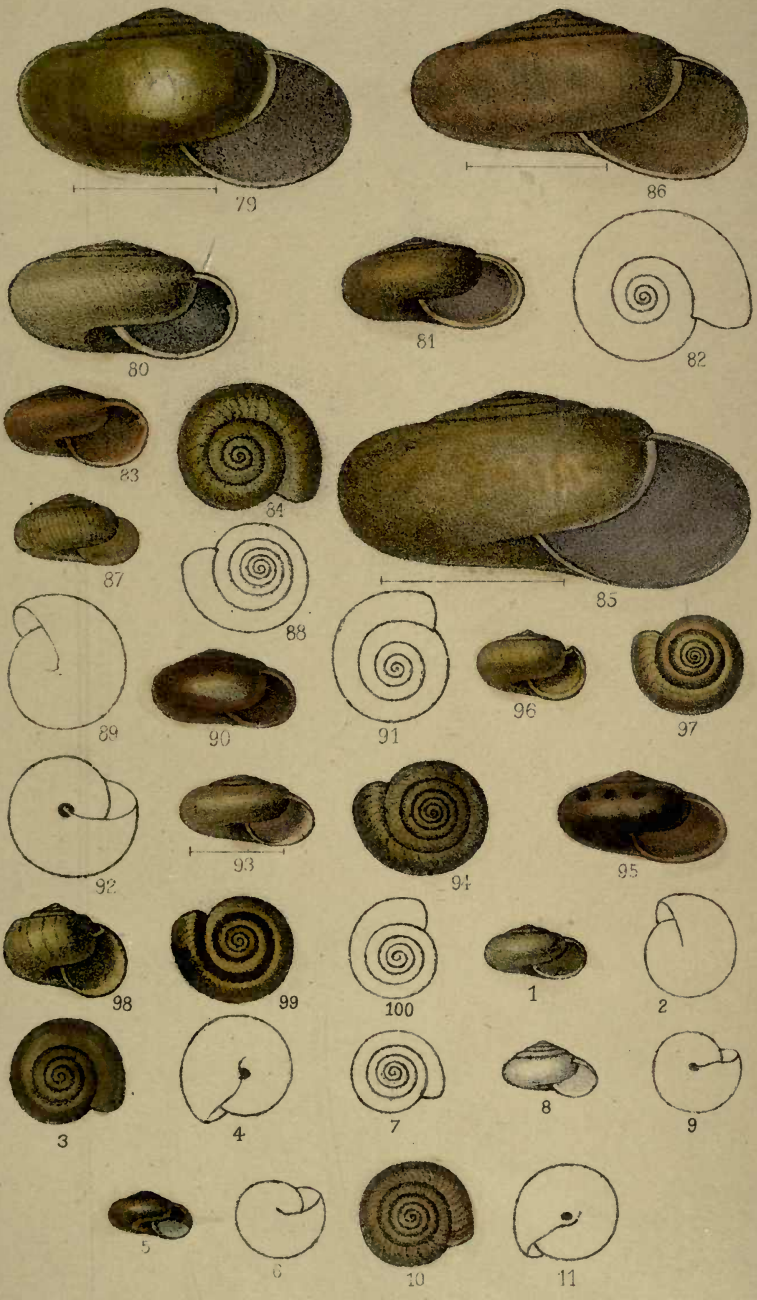
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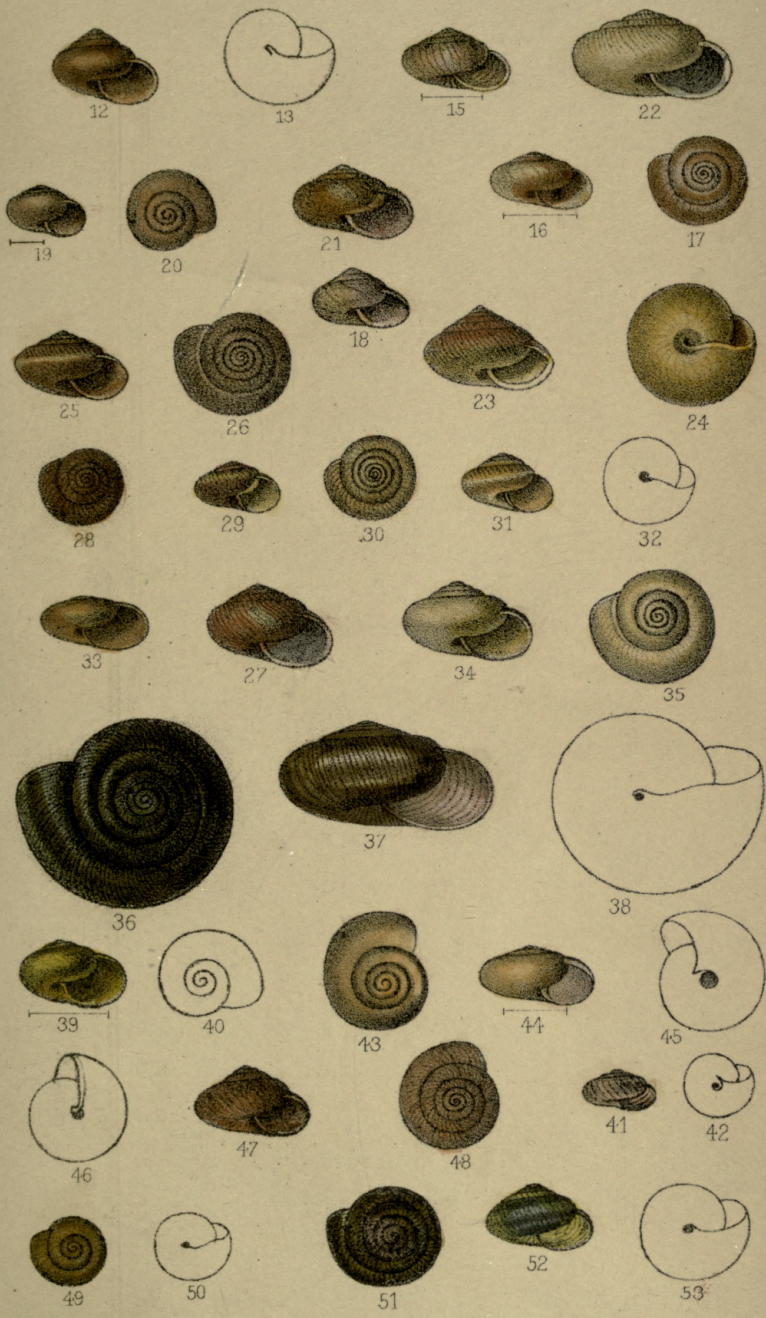
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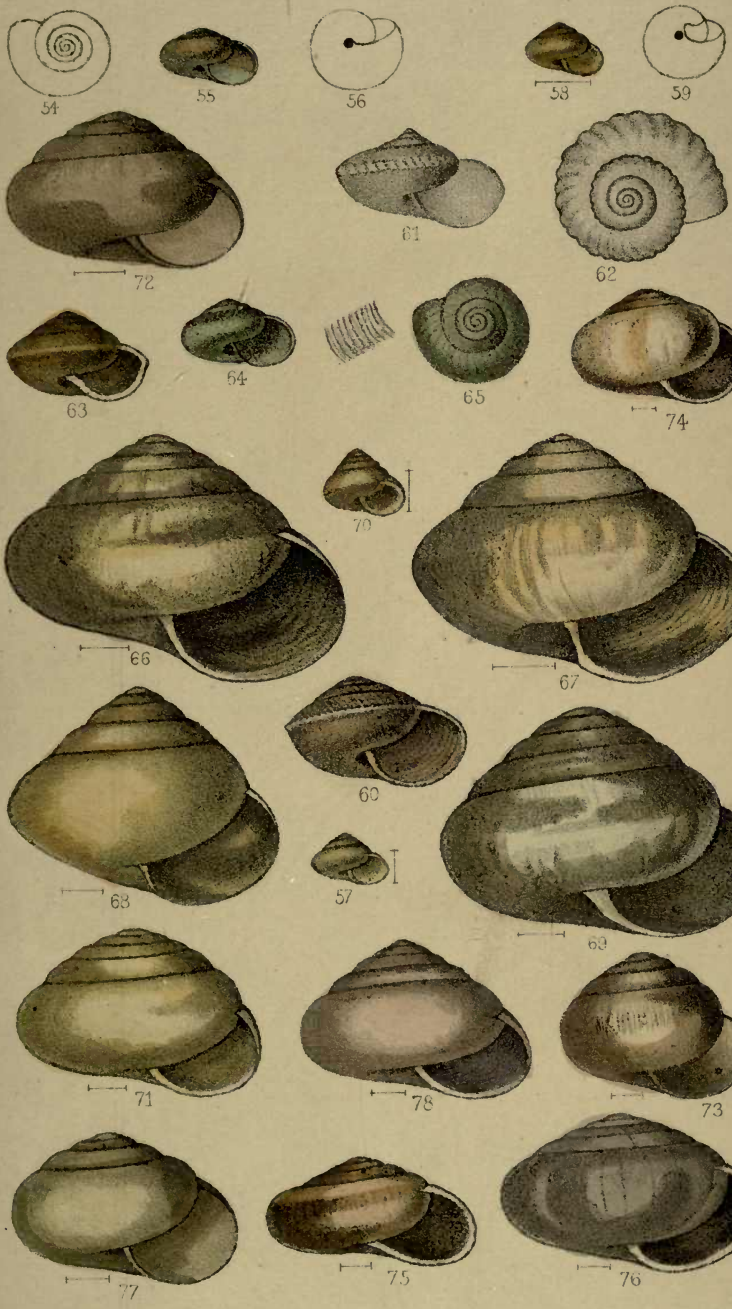
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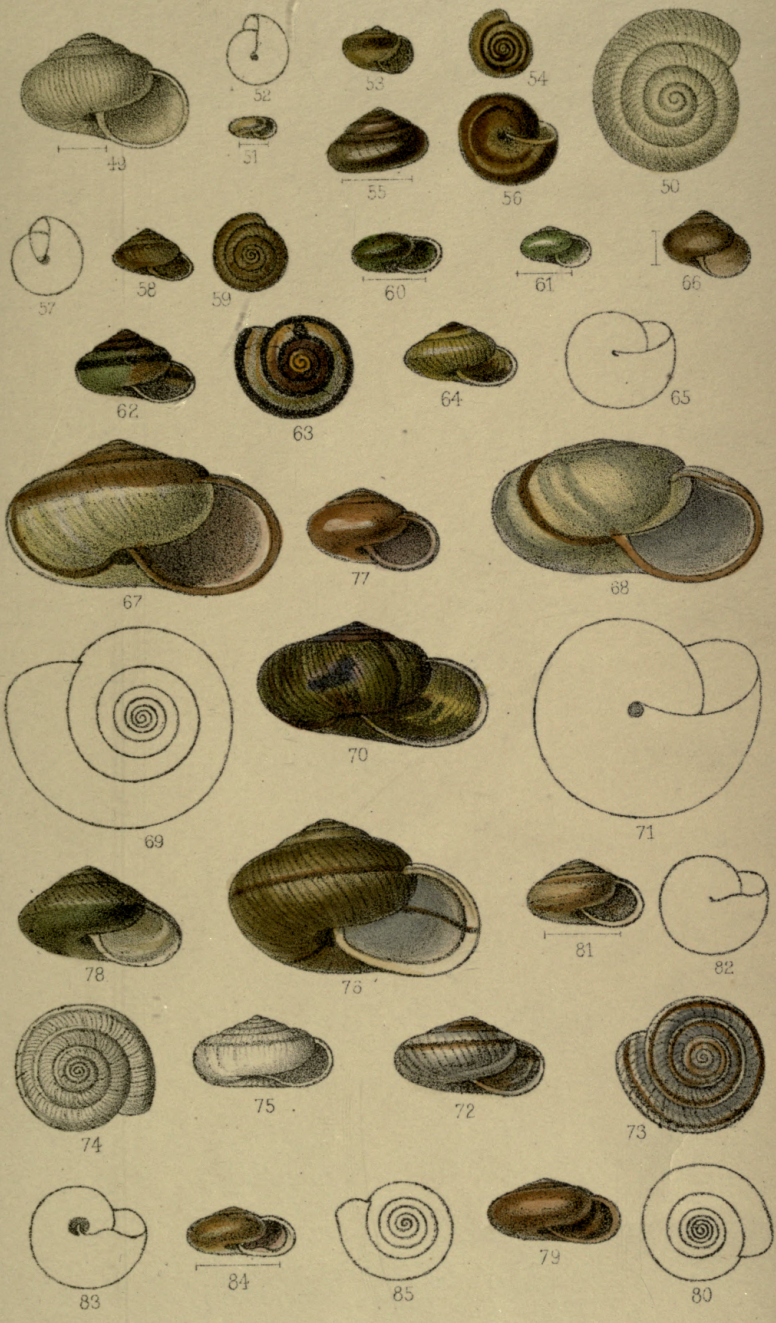
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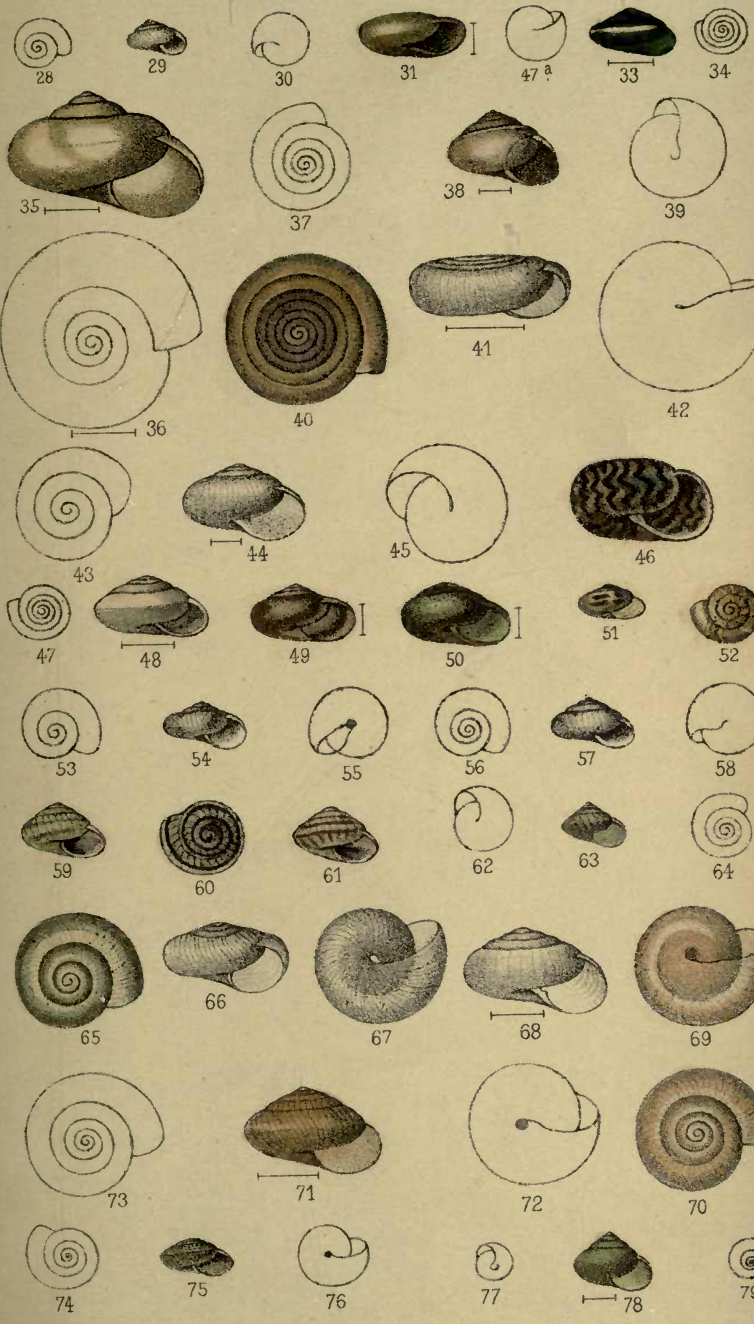
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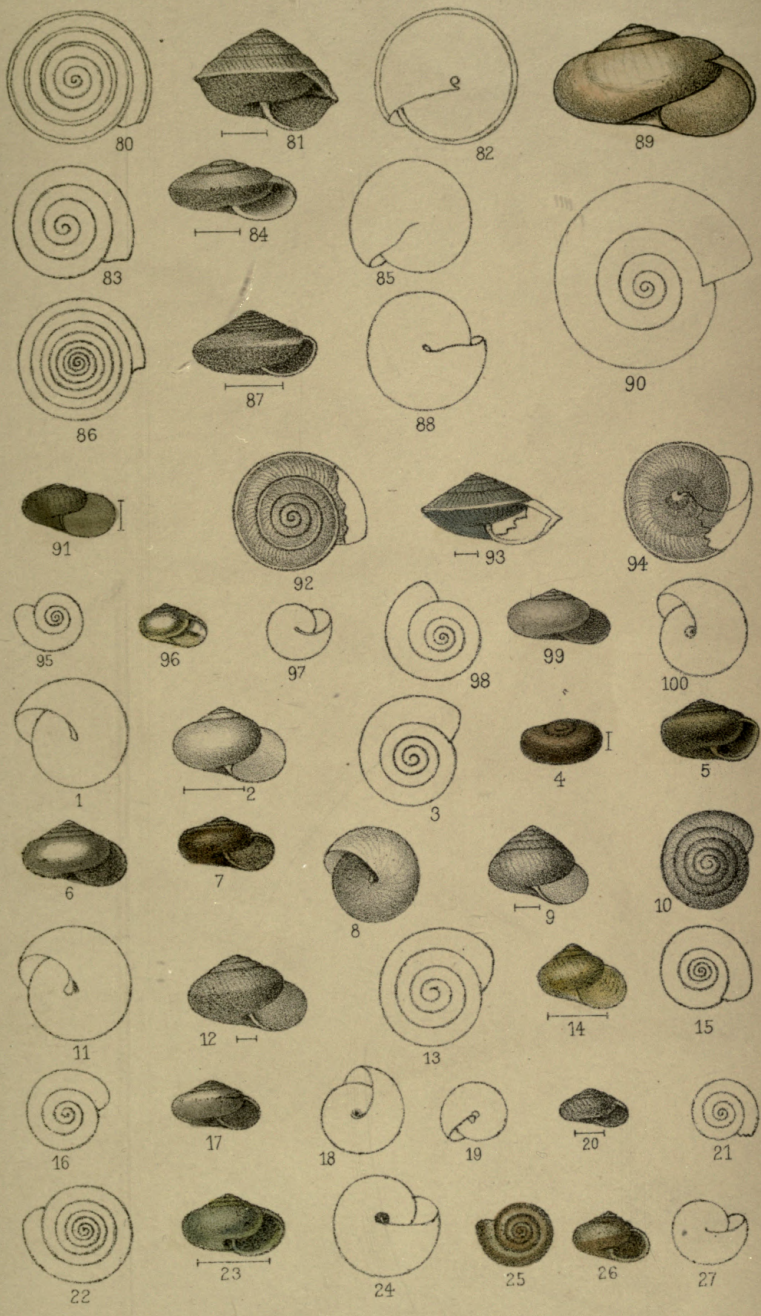
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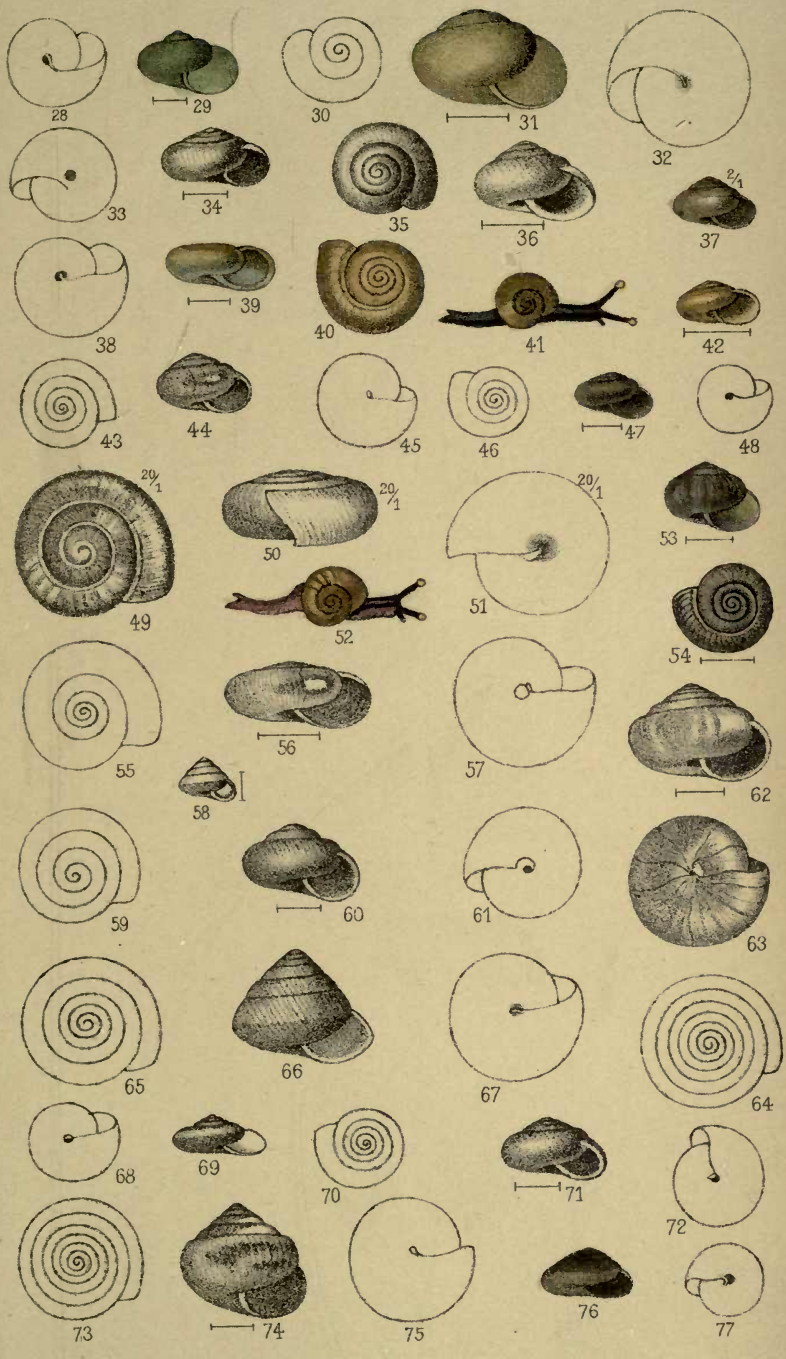
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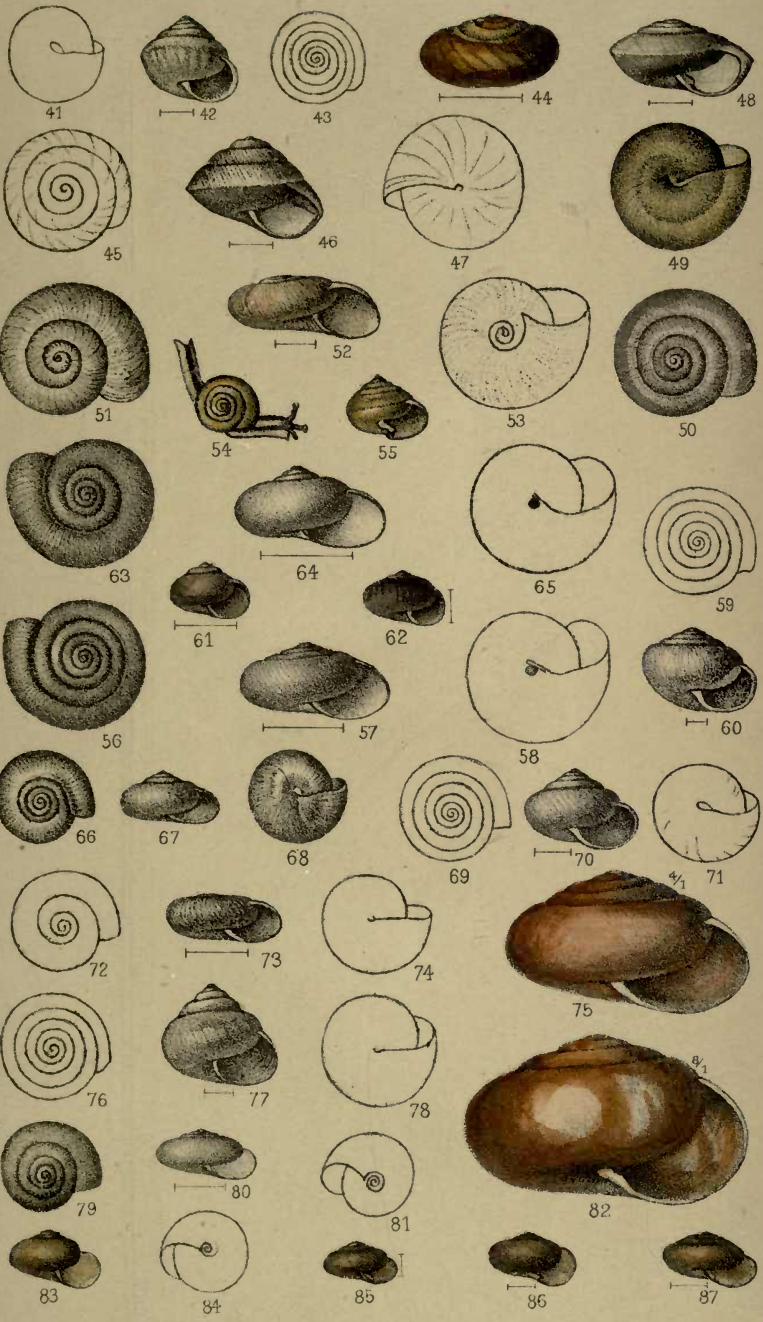
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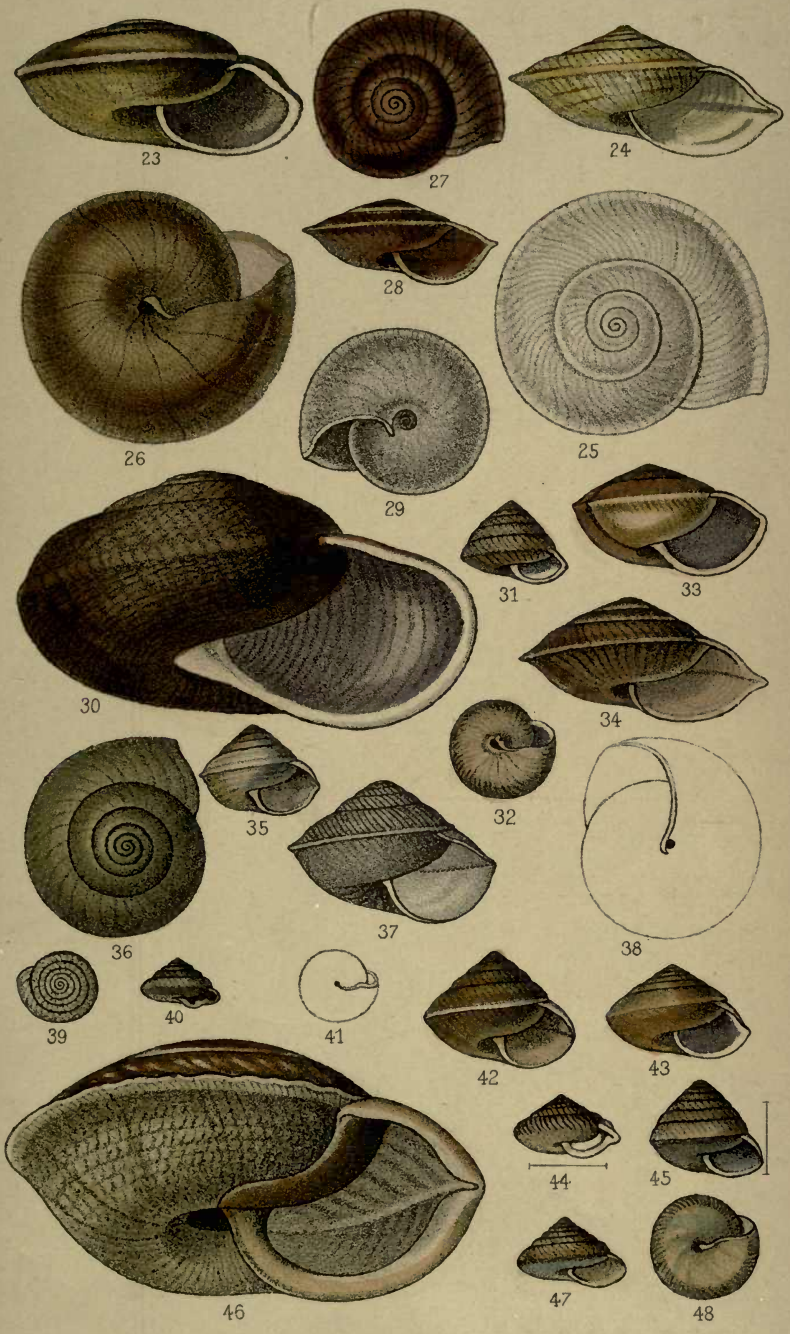
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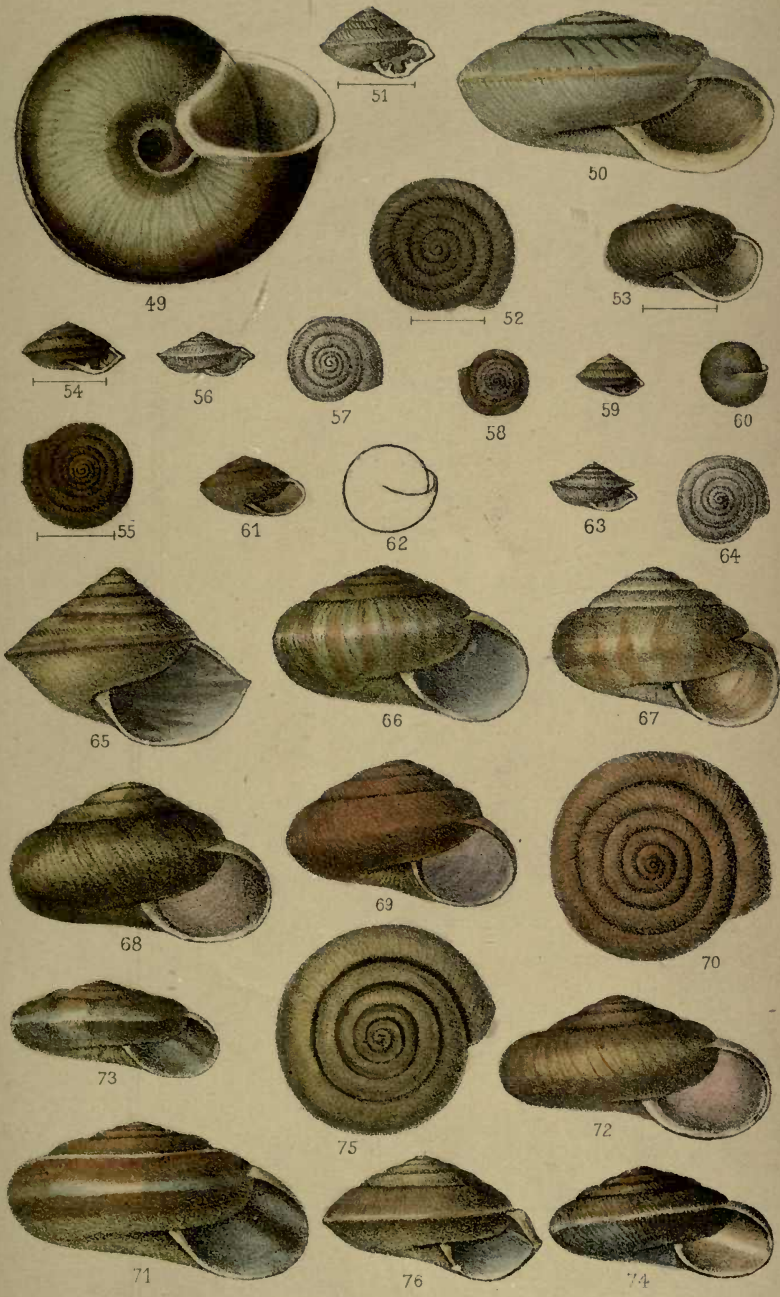
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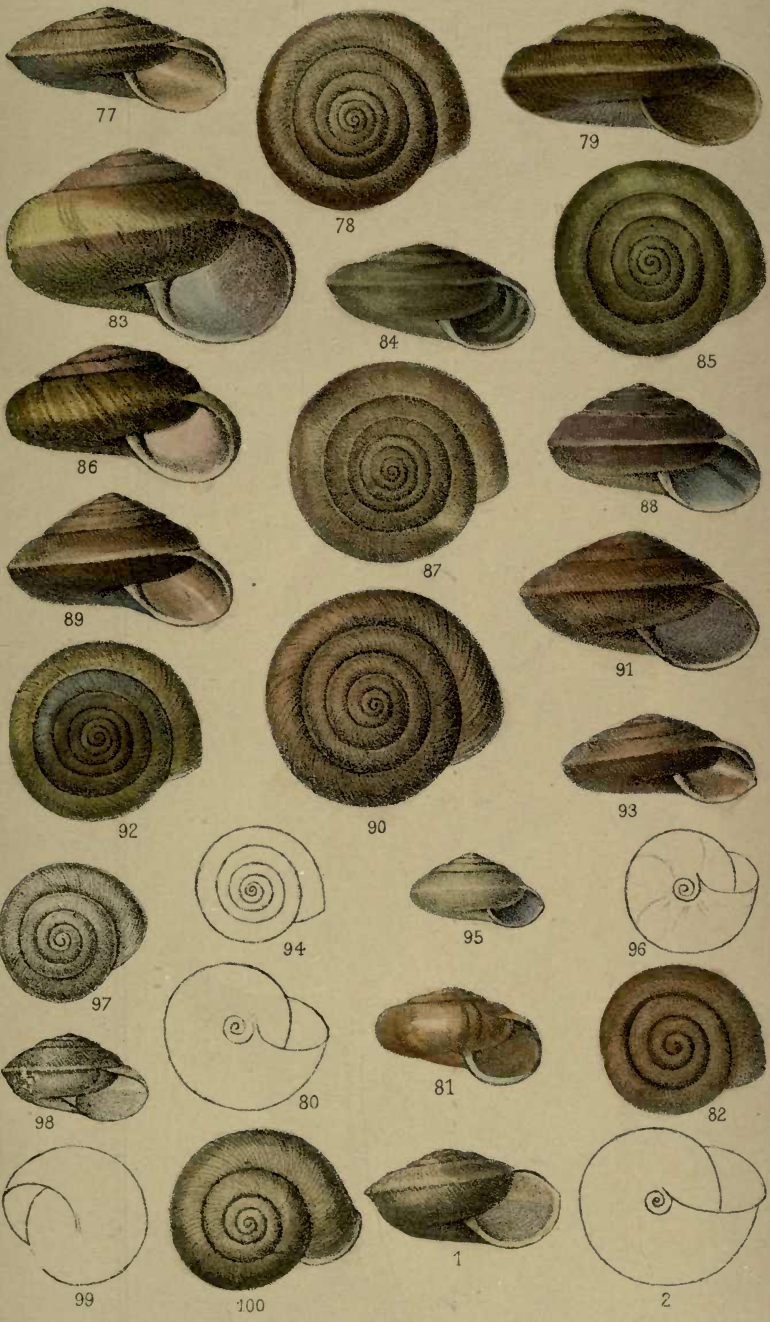
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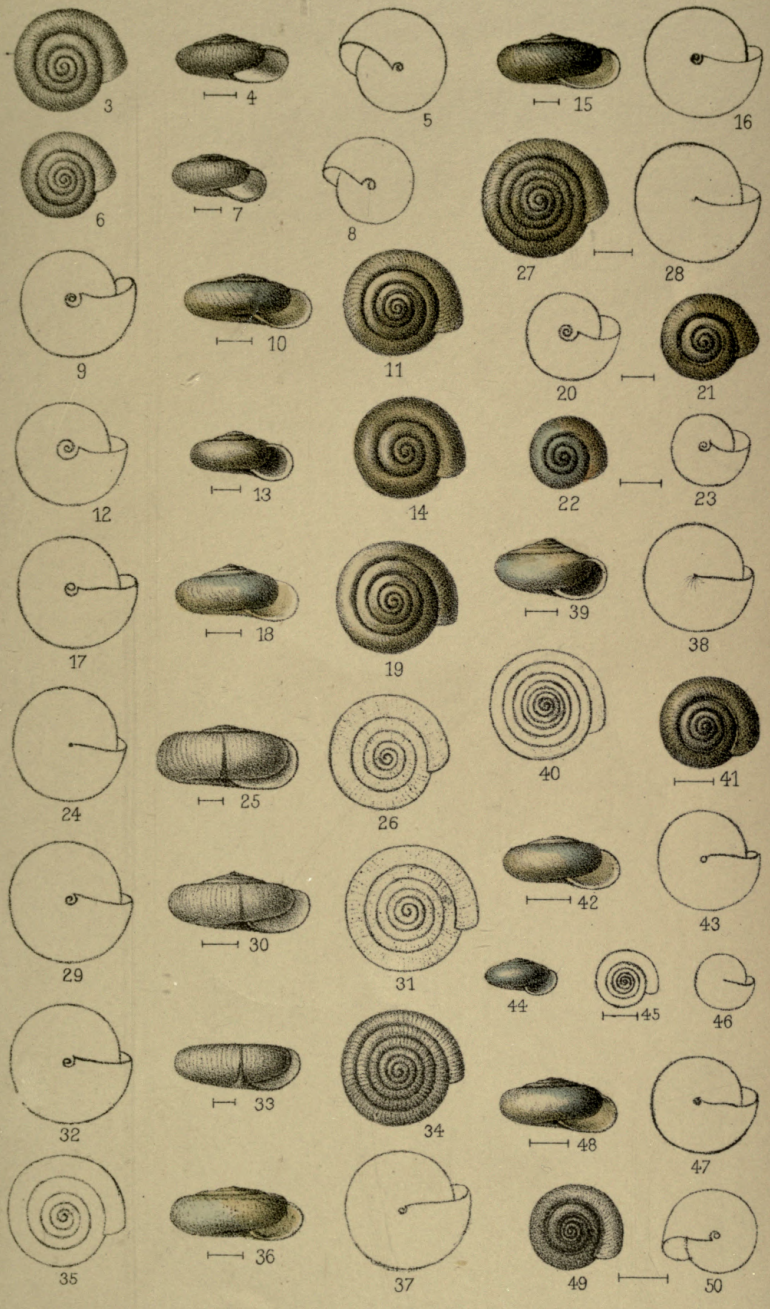
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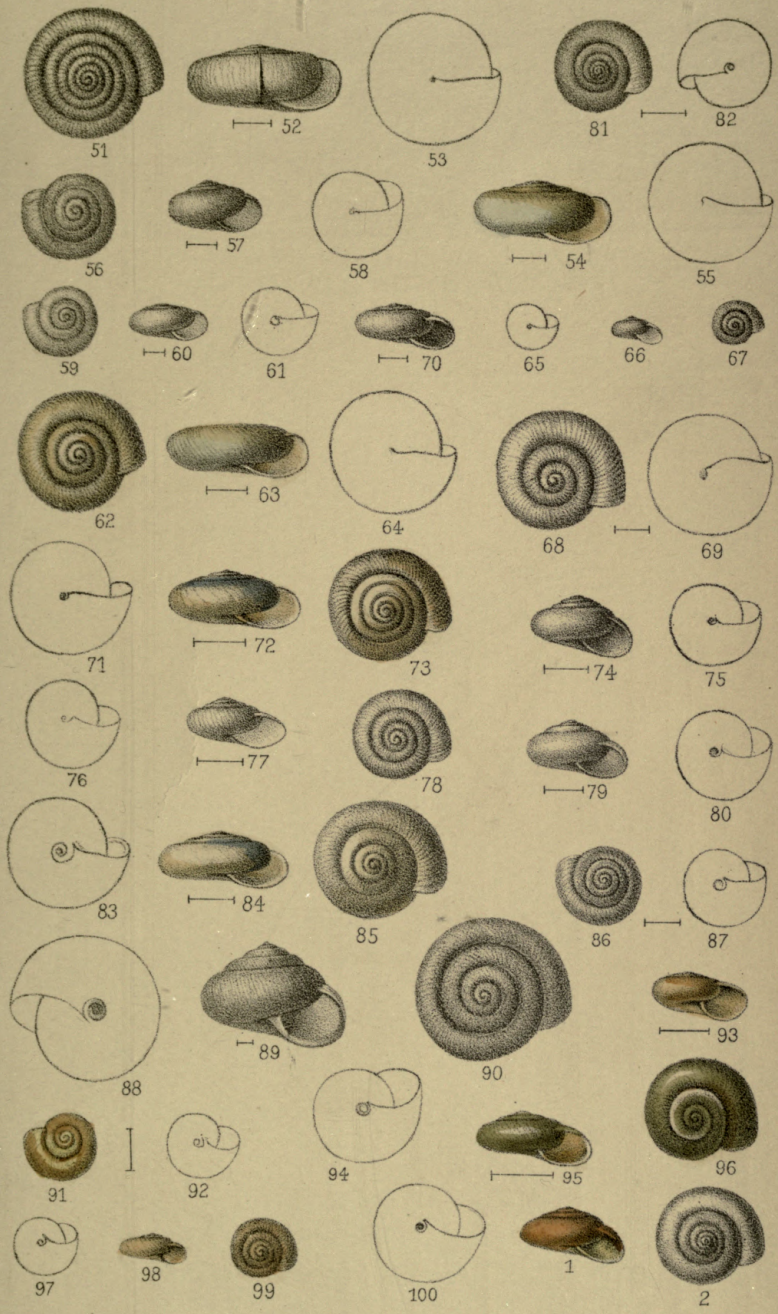
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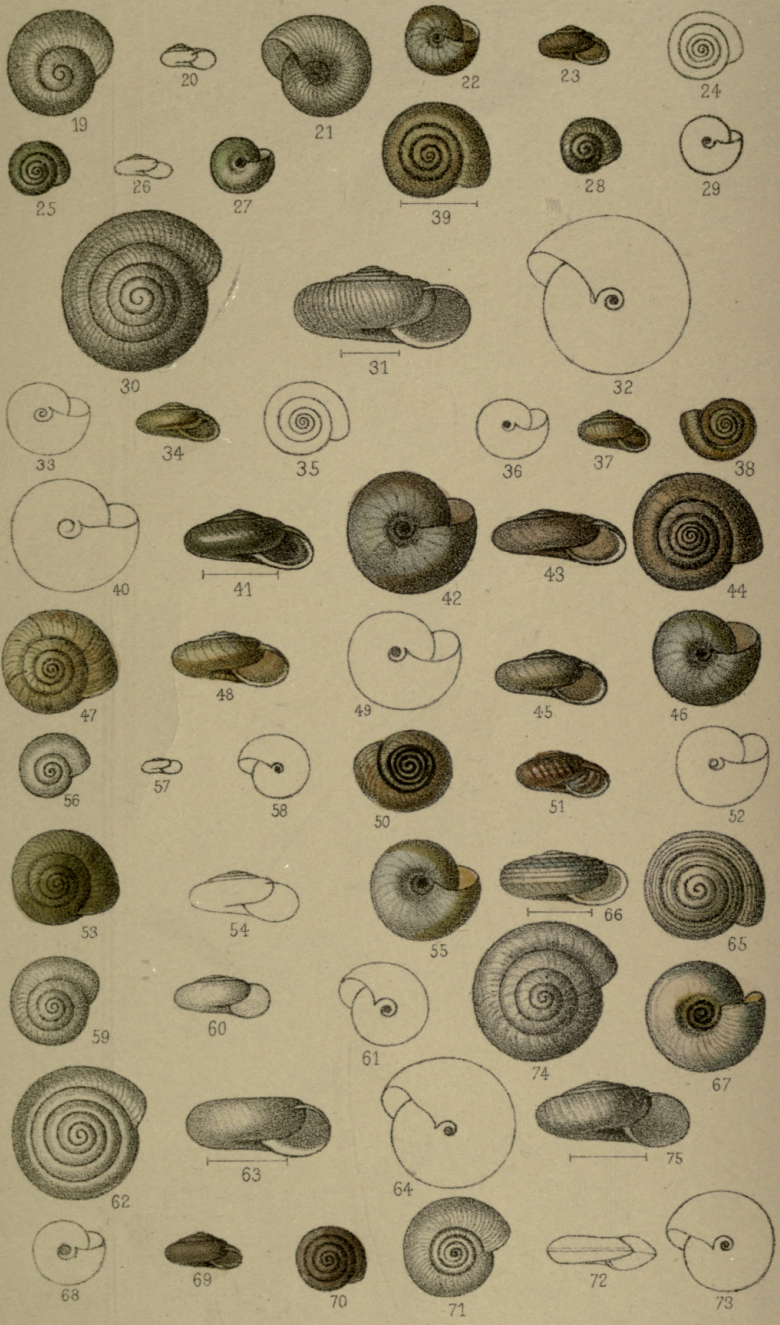
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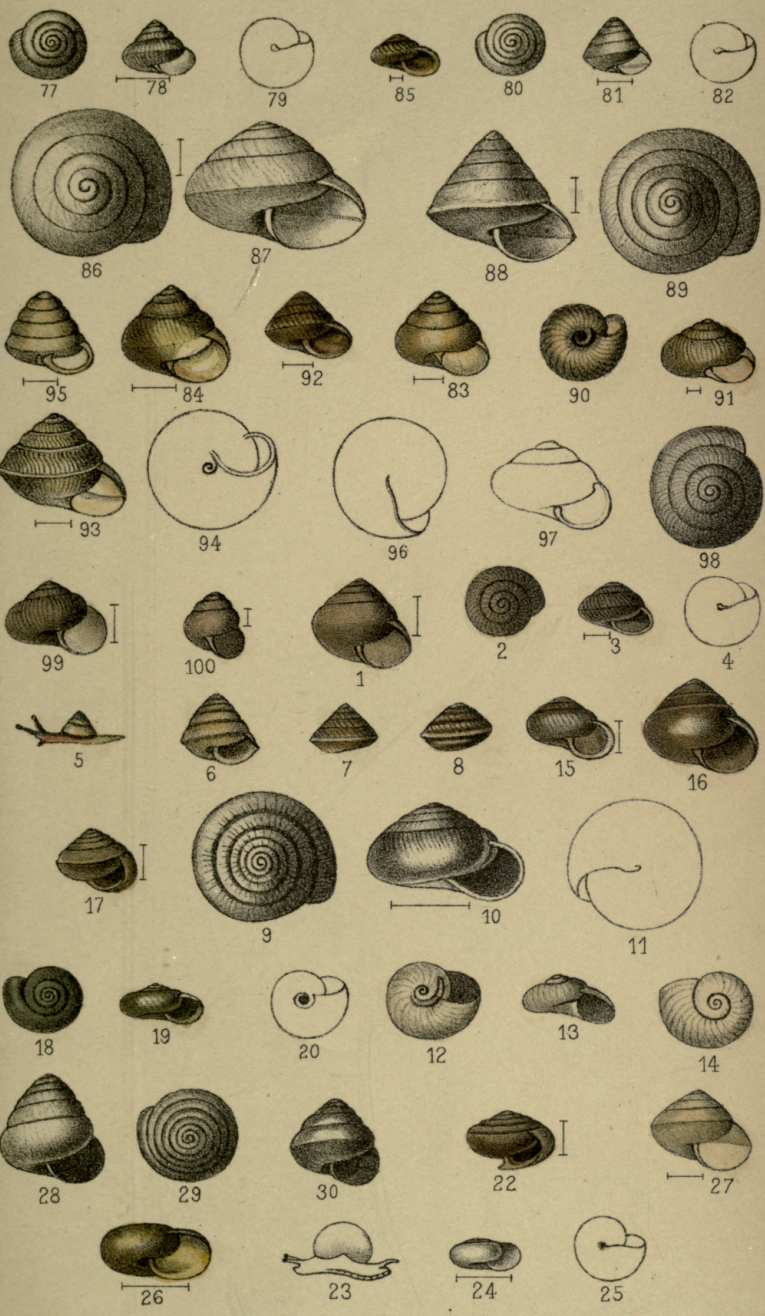
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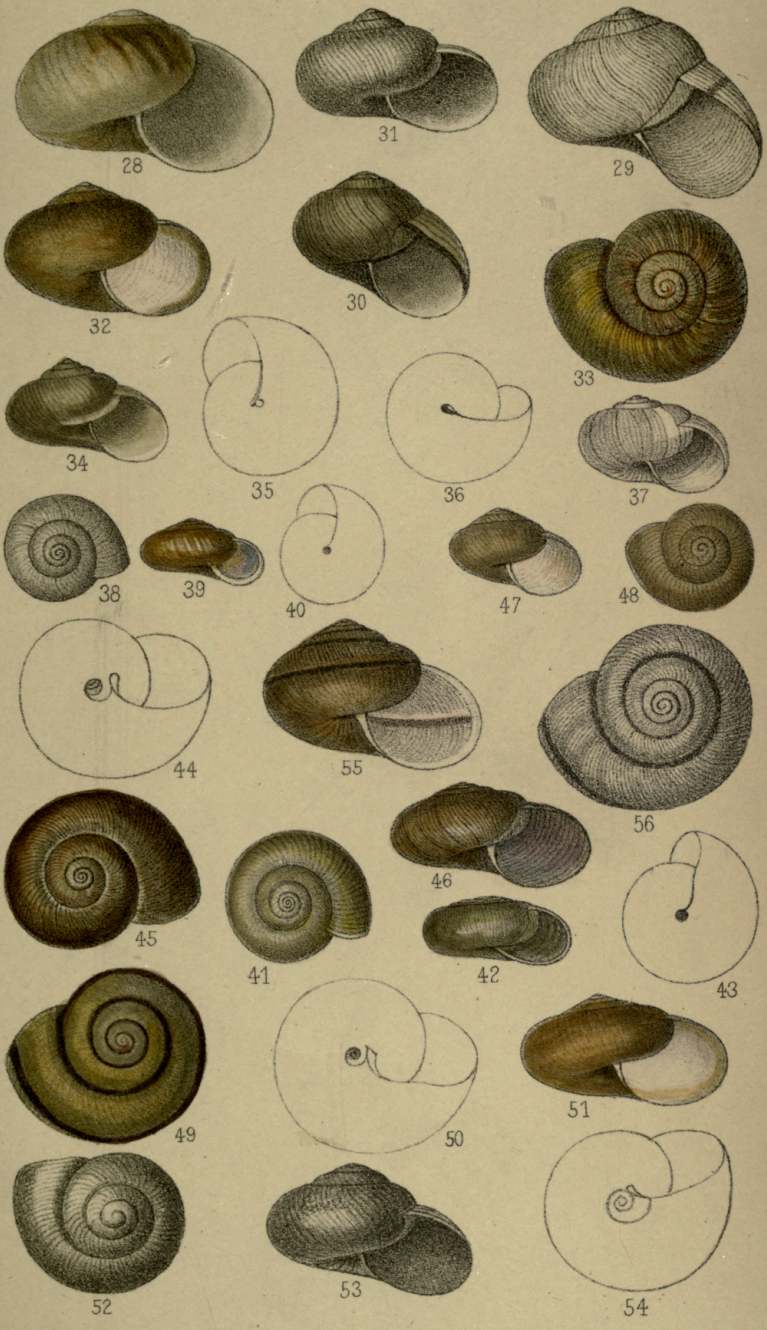
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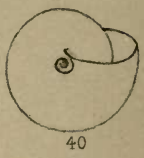
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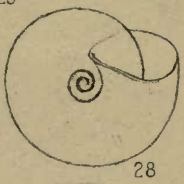
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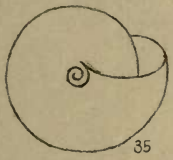
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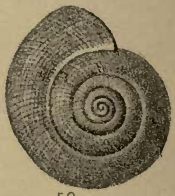
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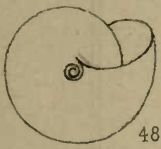
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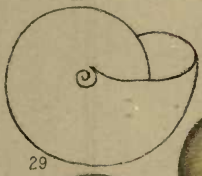
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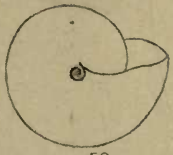
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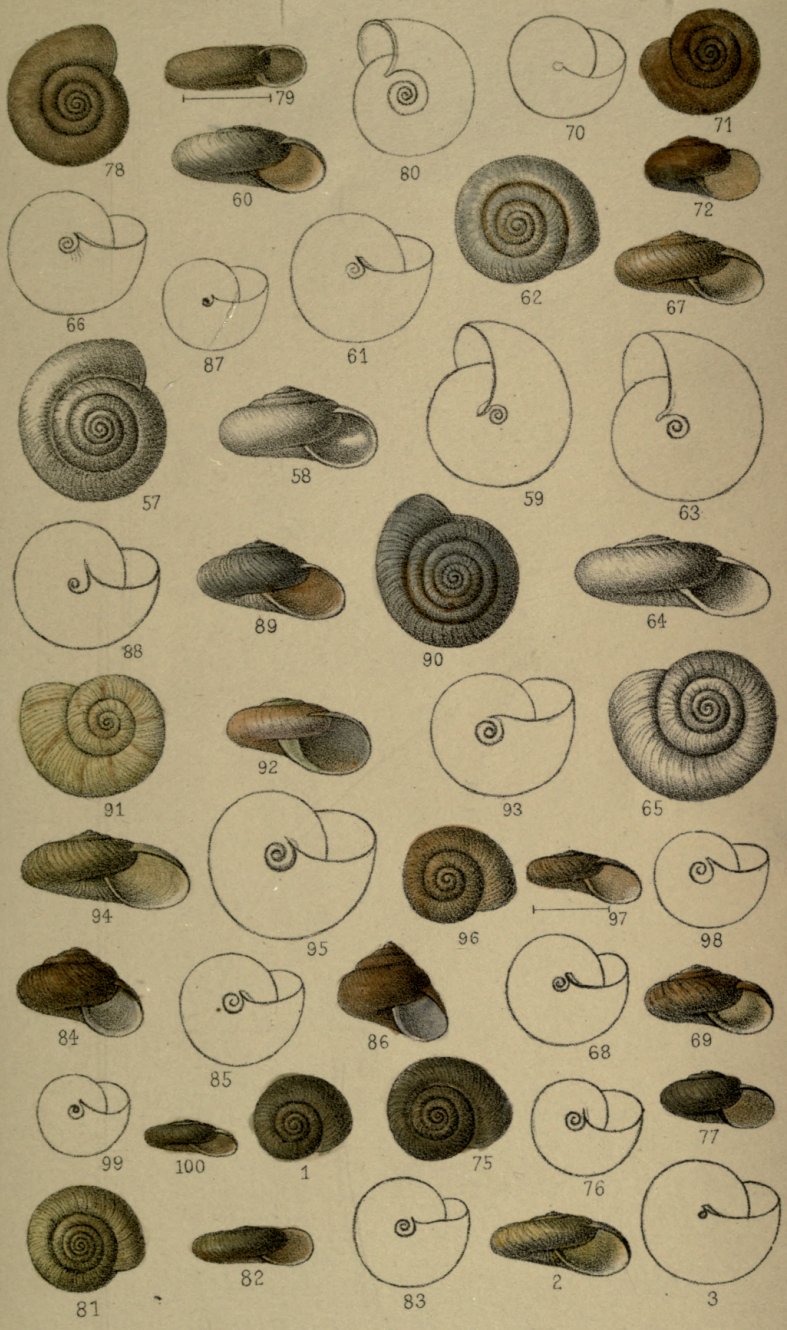
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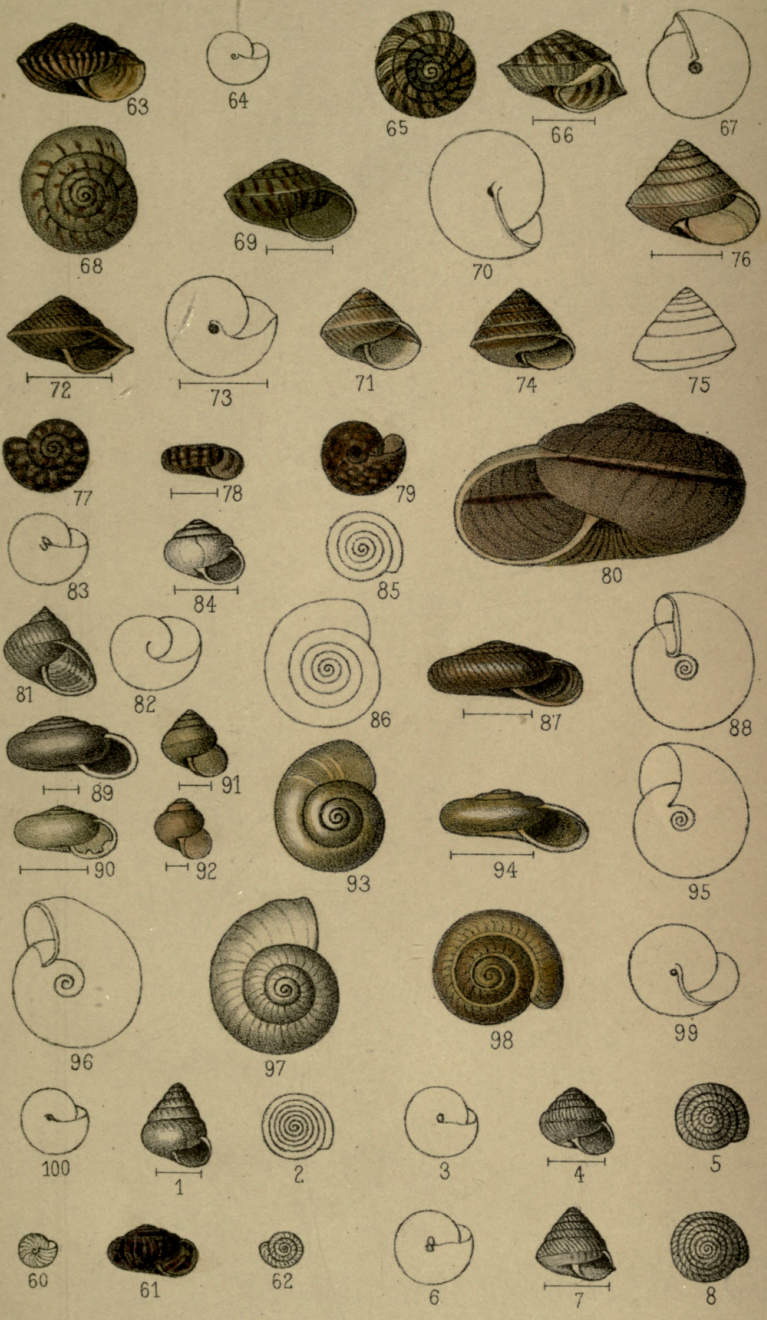
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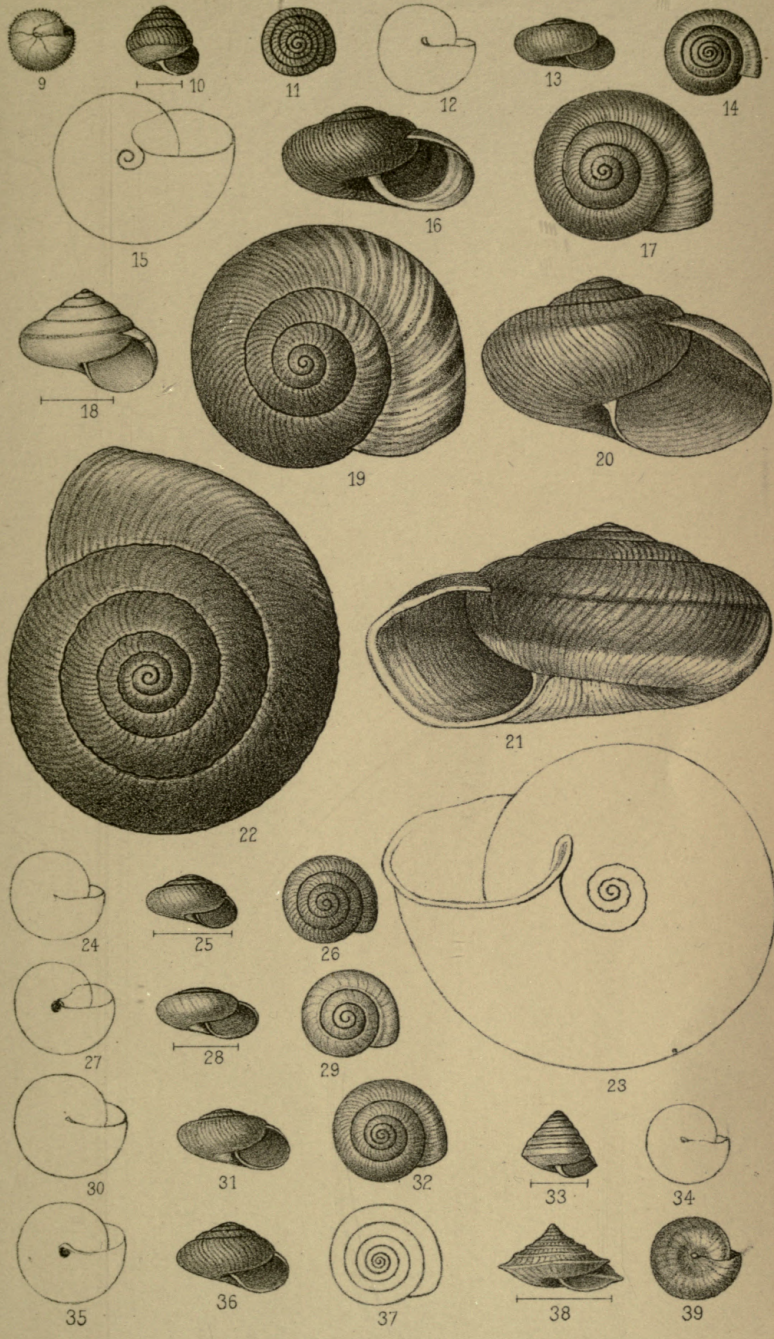
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